

# Carbon and Low Alloy Steel Valves

ASME Class 150/300/600/900/1500/2500  
Gate, Globe and Check Valves, Bolted Bonnet Design



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## Valve Specifications

Class	Product Code	Valve Type	Construction	Page
150	150SCLS	Gate	B.B., O.S.&Y.	09
300	300SCLS	Gate	B.B., O.S.&Y.	09
600	600SCLS	Gate	B.B., O.S.&Y.	10
900	900SCLS	Gate	B.B., O.S.&Y.	10
1500	1500SCLS	Gate	B.B., O.S.&Y.	11
150	150SCJS	Globe	B.B., O.S.&Y.	12
300	300SCJS	Globe	B.B., O.S.&Y.	12
600	600SCJS	Globe	B.B., O.S.&Y.	13
900	900SCJS	Globe	B.B., O.S.&Y.	13
1500	1500SCJS	Globe	B.B., O.S.&Y.	14
150	150SCOS/150SCOHS	Check	B.C.	15
300	300SCOS/300SCOHS	Check	B.C.	16
600	600SCOS/600SCOHS	Check	B.C.	17
900	900SCOS	Check	B.C.	18
1500	1500SCOS	Check	B.C.	18

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해당 카탈로그에 소개된 제품은 모두 1989년 밸브 업계 최초로 ISO 9001인증을 받은 KITZ Corporation의 제품입니다.

## Profile of KITZ Cast Carbon Steel Valves

KITZ사의 다양한 제품들은 공급원의 수를 줄임으로서 고객들이 물품조달 비용을 줄이는데 도움을 줍니다. 최근 밸브 및 공장시설에서 유독가스와 화학물질의 유출을 500ppm으로 제한한 미국 연방법에 때문에 Low Emission Valve 서비스 범위가 확장되었습니다. 모든 고객사들이 밸브 유지, 관리 문제를 필수적인 관리 프로그램으로 목표를 잡고 공장수명주기(Plant life cycle)를 개선하기 위해 노력하고 있습니다. KITZ사의 Low Emission Valve가 탄화수소(Hydrocarbon)와 화학산업에 현실적이고 시기적절한 해결책으로 제공되는 중입니다.

KITZ는 최첨단 생산 시스템과 설비를 보완하기 위하여 밸브산업에 유례없는 품질 보장 관리를 위해 헌신해 왔습니다. 이러한 적극적인 품질관리의 적용은 밸브산업 초기인 1989년, 런던이 KITZ를 ISO 9001의 처음으로 선택했을 때, Bureau Veritas Quality International\*에 의해 입증되었습니다.

\*KITZ사는 2013년 Lloyd's Register Quality Assurance에 의해 인가를 받았습니다.



Machining



Field application 1



Field application 2



KITZ Ina Plant, Japan  
(ISO 9001 certified)



KITZ CORPORATION of  
JIANGSU KUNSHAN  
(ISO 9001 certified)

# Standard Product Range

KITZ Cast carbon Steel Valves, RF-flanged<sup>\*(1)</sup>, Bolted Bonnet Design

Valve Type	ASME Class	Design Standard		Material		Nominal Size Code	Conne ction	Nominal Size																								Page
		P-T Page Rating	Wall Thickness	* (2) Shell	* (3) Trim			1½	2	2½	3	4	5	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36			
		40	50	65	80			100	125	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900							
Gate	150	API 600 BS 1414	WCB	F6/HF	150SCLS <sup>*(4)</sup>	Flanges	●	●	●	●	●	●	●	●	●	●	●	●	●	△	●							09				
					G-150SCLS	Butt-welding										△	△	△	●	●	●	●	△	●	△	△	△	△	△	△		
	300				300SCLS	Flanges	●	●	●	●	●	●	●	●	●	●	●	●	●	△	●										09	
					G-300SCLS	Butt-welding										△	△	△	●	●	●	●	△	●	△	△	△	△	△	△		
	600				W300SCLS	Flanges																										
					G-300SCLS	Butt-welding		△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△									
	900				600SCLS	Flanges		●	●	●	●	△	●	●	●	●	△	△	△	△	△	△										
					G-600SCLS	Butt-welding		△	△	△	△	△	△	△	△	△	△	△	△	△	△	△										
	1500				900SCLS	Flanges		●		●	●		●	●	●	●																
					G-900SCLS	Butt-welding					△	△	△	△	△	△	△	△	△	△	△	△										
	Globe				150	ASME B16.34	WCB	F6/HF	150SCJS	Flanges	●	●	●	●	●	●																12
									G-150SCJS	Butt-welding		△	△	△	△	△	△															
300		W150SCJS	Flanges		△				△	△	△	△	△																		12	
		G-150SCJS	Butt-welding															△	△													
600		300SCJS	Flanges	●	●				●	●	●	●																				
		G-300SCJS	Butt-welding		△				△	△	△	△																				
900		600SCJS	Flanges		●				●	●	△		●	●	●	●																
		G-600SCJS	Butt-welding		△				△	△			△	△	△	△																
1500		900SCJS	Flanges							△	△		△	△																	13	
		G-900SCJS	Butt-welding							△	△		△	△																		
1500		W1500SCJS	Flanges		△				△																						14	
		G-1500SCJS	Butt-welding		△				△	△	△		△	△																		
1500	W1500SCJS	Flanges																									14					
	G-1500SCJS	Butt-welding																														
Swing Check	150	API 600 BS 1868	WCB or A105	F6/HF	150SCOS	Flanges	●	●	●	●	●	●	●	●	●	●	●	●	●	△	●	△	△	△					15			
					W150SCOS	Butt-welding		△	△	△	△	△	△	△	△	△	△	△	△	△	△	△										
	300				150SCOHS	Flanges	●	●	●	●	●		●	●	●	●	●	●	●	●	●											
					W150SCOHS	Butt-welding		△	△	△	△	△	△	△	△	△	△	△	△	△	△	△										
	600				300SCOS	Flanges	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	△	△			△	△				16	
					G-300SCOS	Butt-welding		△	△	△	△	△	△	△	△	△	△	△	△	△	△	△										
	900				600SCOHS	Flanges	●	●	●	●	●		●	●	●	●	●	●	●	●	●											
					G-600SCOHS	Butt-welding		△	△	△	△		△	△	△	△	△	△	△	△	△	△										
1500	900SCOS	Flanges				●	●		●	●	●	●	△	△	△	△	△	△														
	G-900SCOS	Butt-welding				△	△		△	△	△																					
1500	1500SCOS	Flanges		●	●	●	●		●	●	△			△	△												18					
	G-1500SCOS	Butt-welding		△		△	△		△	△	△																					

\*(1): Butt-welding은 Option으로 가능합니다.  
 \* (2): Shell의 특수 재질은, 3page의 "Valve Shell Materials" 참조 하십시오.  
 \* (3): Trim의 특수 재질은, 3 page의 "Valve Trim Materials" 참조 하십시오.  
 \* (4): 36B 이상 Size는 고객의 Order로 가능 합니다.  
 △: Custom order 입니다. KITZ로 문의 하여 주십시오.  
 Pressure Seal Valves에 관련된 정보는 페이지 20을 참고하십시오.

# Standard Seat Material and Construction

Valve Type	KITZ Product Code	Part	Nominal Size	Nominal Size																											
				1 1/2	2	2 1/2	3	4	5	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36						
Gate	150SCLS, 300SCLS, G-150SCLS, G-300SCLS	Disc		●	●	●	●	●	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆		
		Body Seat	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
	600SCLS, G-600SCLS	Disc			●	●	●	●	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆													
		Body Seat		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■												
	900SCLS, 1500SCLS, G-900SCLS, G-1500SCLS	Disc			●	●	●	●		◆	◆	◆	◆	◆	◆	◆	◆	◆													
		Body Seat		■	■	■	■	■		■	■	■	■	■	■	■	■	■	■												
Globe	150SCJS, 300SCJS, G-150SCJS, G-300SCJS	Disc	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲														
		Body Seat	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■													
	600SCJS, G-600SCJS	Disc		●	●	●	●	▲	▲	▲	▲	▲																			
		Body Seat		■	■	■	■	■	■	■	■	■	■																		
	900SCJS, 1500SCJS, G-900SCJS, G-1500SCJS	Disc		●	●	●	●		▲	▲																					
		Body Seat		▼	▼	▼	▼		▼	▼																					
Swing Check	150SCOS, 300SCOS, 150SCOHS, 300SCOHS	Disc	●	●	●	●	●	●	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆		
		Body Seat	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
	600SCOS, 600SCOHS	Disc		●	●	●	●		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆													
		Body Seat		■	■	■	■	■		■	■	■	■	■	■	■	■	■	■												
	900SCOS, 1500SCOS	Disc		◆	◆	◆	◆		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆													
		Body Seat		■	■	■	■		■	■	■	■	■	■	■	■	■	■	■												

- : 13Cr Disc
- ◆ : Cast Steel Disc-13Cr Deposited Seats
- : Steel Seats-Hardfaced and Welded
- ▲ : Steel Disc-13Cr Deposited Seats
- ▼ : Directly Deposited Hardfacing

## PRODUCT CODING

### G- 150 SC LS6CY

5 4 1 2 3

**1 ASME pressure class:**  
150 through 2500

**2 Shell material code:**  
Carbon and low alloy steel are always identified as "SC"

**3 Other valve specifications:**

**L S 6C Y**

a b c b

**a Valve type code:**

- L: Gate valve
- J: Globe valve
- O&OH: Swing check valve
- LPS: Pressure seal bonnet gate
- JPS: Pressure seal bonnet globe
- OPS: Pressure seal cap swing check

**b Seat material:**

Code	Disc Seat Material	Body Seat Material
S □	13Cr	HF
S □ Y	HF	HF

□ : Special shell material code

**c Special shell material:**

No code is required for WCB. Refer to "Valve Shell Materials" on Page 03, for special shell materials.

**4 Type of end connection:**

No code is required for RF-flanged ends  
W: Butt-welding ends.  
Refer to "Contact Face of Flanges" on Page 05.

**5 Type of valve operation:**

No code is required for manual handwheel operation.  
G: Gear operation.  
E: Electric actuator operation.

## General Design Specifications

Items	American Std.		British Std.
	Bolted Bonnet	Pressure Seal	
Shell wall thickness and general valve design	API 600*	ASME B 16.34	BS/ISO 10434 (Gate valve) BS 1873 (Globe valve) BS 1868 (Check valve)
Pressure-temperature ratings	ASME B16.34		BS EN 1759-1
Face-to-face dimensions End-to-end dimensions	ASME B16.10		BS EN 558-1
End flange dimensions Gasket contact facing	ASME B16.5*		BS EN 1759-1
Welding end dimensions	ASME B16.25		BS/ISO 10434 (Gate valve) BS 1873 (Globe valve) BS 1868 (Check valve)

\*MSS SP-44 for Nominal size 22 and ASME B16.47 Series B for Nominal size 26 and larger, for end flange dimensions.

\*150, 300, 600 SCOHS: API 594 only.

## Valve Shell Materials

표준재료인 ASTM A216 WCB 외에도 KITZ 주강 밸브는 하기 재질도 가능 합니다..

ASTM Specification	Material Designation	Working Temperature <sup>*1</sup> °F <sup>*2</sup> (°C)	KITZ code
A216 WCB / A216 WCC	Carbon steel	1000 (538) Maximum	—
A217 WC1	C-1/2 Mo		1C
A217 WC6	11/4 Cr-1/2 Mo		6C
A217 WC9	21/4 Cr-1Mo	1100 (593) Maximum	9C
A217 C5	5Cr-1/2 Mo		5C
A217 C12	9Cr-1Mo	1200 (649) Maximum	12C
A352 LCB	Carbon steel		BL
A352 LCC	Carbon steel		CL
A352 LC1	C-1/2 Mo	-75 (-59) Minimum	1L
A352 LC2	21/2 Ni -100	-100 (-73) Minimum	2L
A352 LC3	31/2 Ni -150	-150 (-101) Minimum	3L

ASTM A351 Austenitic Stainless Steel Valves 관련은, KITZ Cat.No.E-150 참조하십시오.

\*1 Refer to ASME B16.34 for details of ASTM A216, A217 and A352 Pressure-temperature ratings. (See page 20 for A216 and A217)

The minimum working temperature of ASTM A352 is based on ASME B31.3.

\*2 Maximum and minimum temperature of the valve will vary, depending on the pressure class and temperature range of the seal material.

## KITZ Low Temperature Service Valves

KITZ Corporation은 최대 -150°F(-101°C)의 저온에서 사용할 수 있는 Class 150, 300, 600 그리고 API 600의 제품들을 제공합니다. 세부적인 사양에 대한 정보는 문의해 주십시오.

## Valve Trim Materials

API 600과 BS 1873/1868은 다음과같은 밸브 구성 요소를 밸브 Trim으로 지정합니다.

Description	Gate Valve	Globe Valve	Check Valve
Disc seat surface	●	●	●
Body seat surface	●	●	●
Bonnet bush (Backseat)	●	●	—
Stem	●	●	—
Others	Internal small parts	Lock nut	Hinge Pin
Specified by	API 600	BS 1873	BS 1868

## Disc seat and body seat

Table 8의 Trim은 API 600에 명시되었으며, KITZ에서 표준 또는 고객의 의견에 따라 사용합니다. Disc Seat와 Body Seat를 각 다른 Seating 표면재질로 사용하는 Combination Trim의 구성요소는 사전 지시가 없는 한, 제조사의 방법을 따릅니다.

Combination number	Material description	Brinell hardness
5.	HF / HF	350HB min.
8.	13Cr / HF	250HB min. / 350HB min.
11.*	Ni-Cu alloy (Monel) / HF	Not specified / 350HB min.
12.*	18Cr-8Ni-Mo (316) / HF	Not specified / 350HB min.
14.*	19Cr-29Ni (Alloy 20) / HF	Not specified / 350HB min.

\*Optionally available.

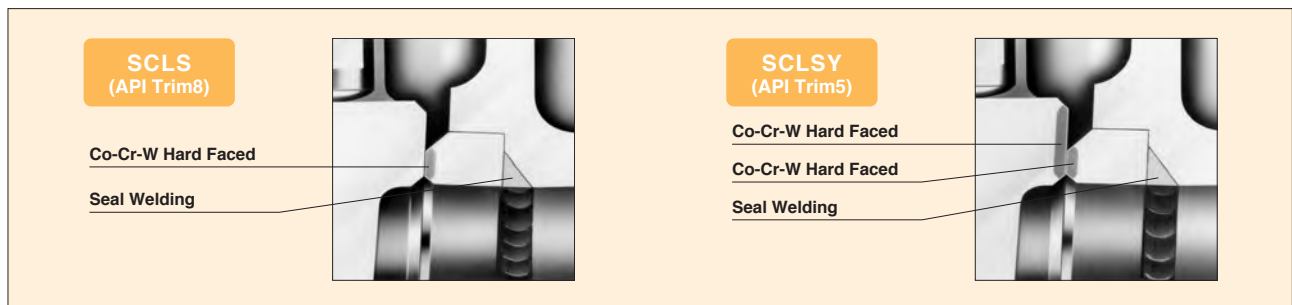
HF: Co-Cr-W Alloy (Stellite No.6) deposited.

## Stems and bonnet bushing (backseat bushing)

ASTM A182 (F6a)가 Stem과 Bonnet Bushing의 기본재질로 사용됩니다. 구체적인 요구사항이 있을 시, ASTM A182(F304), Monel, Alloy20이 기타재질로 사용됩니다.

## Body Seat Rings

KITZ Cast Steel 밸브의 Body Seat Ring은 아래 그림의 예시와 같이 용접밀봉으로 장착됩니다. 사전 지시가 없는 한, Body Seat Ring 장착은 제조사의 방법에 따릅니다. 구체적인 장착 방식을 원하실경우, KITZ Code 번호와 함께 주문서에 기재해주시시오.



ASTM A216 WCB의 기준으로 제작된 KITZ Cast Steel Valve의 경우, 표준 Shell 재질, Disc Seat와 Body Seat Ring이 아래와 같이 제공됩니다. (2페이지의 Product Coding을 참조)

KITZ Product Code	Standard Disc Seat	Standard Body Seat	Mounting of Body Seat Rings
SCLS (Gate) SCJS (Globe) SCOS (Check) SCOHS (Check)	F6a or WCB + 13Cr or A105 + 13Cr or CA15	A105 + HF* or A106 Gr. B + HF* or AISI 1022 + HF* or Direct HF**	Seal Welded or Direct HF**
SCLSY (Gate) SCJSY (Globe) SCOSY (Check) SCOHSY (Check)	A105 + HF* or WCB + HF* or CA15 + HF*	A105 + HF* or A106 Gr. B + HF* or AISI 1022 + HF* or Direct HF**	Seal Welded or Direct HF**

\* Co-Cr-W Alloy deposited for hard facing.

\*\* Co-Cr-W Alloy is directly deposited on valve body for hard facing.

KITZ Product Code 900SCJS, 900SCJSY, 1500SCJS and 1500SCJSY globe valves employ this hard facing.

## Bonnet Gasket Materials

Class Rating에 따라 아래의 Gasket재질이 KITZ Cast Steel 밸브의 Body/Bonnet Flange Gasket 재질이 됩니다. 주문 시 Gasket 재질을 명시해 주십시오.

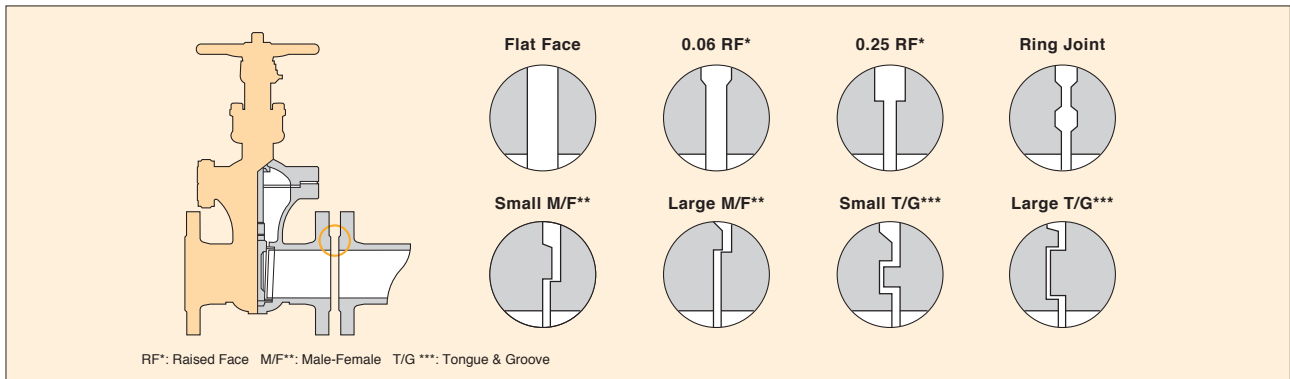
Gasket Material	Class				
	150	300	600	900	1500
Corrugated metal with flexible graphite	●				
Ring joint metal			●	●	●
Spiral wound metal, flexible graphite filled		●	●*		
Stainless steel inserted flexible graphite	●				

Note: Refer to Page 07 for bonnet gaskets used for KITZ low emission service valves.

\*600 SCOHS: Spiral wound metal, graphite filled only.

## Contact Face of Flanges

아래 그림과 같이 ASME B16.5는 여러가지 Flange 접촉면을 지정합니다. KITZ 주강 밸브는 Class 150 및 300에 대해 0.06RF를, Ring Joint를 선택적으로 사용하는 고압 Class에 대해서는 0.25RF 를 사용합니다.



End Flange의 Gasket 접촉 surface finish는 Body & Bonnet Gasket의 재질에 따라 결정된다.

## NACE Valves (NACE 열 처리 밸브)

Sour Gas 또는 탄화수소(Hydrocarbon)를 함유한 황화수소(Hydrogen Sulfid)에 사용하기 위하여, KITZ사는 KITZ표준 NACE MR0103 또는 NACE MR0175표준과 혼합하여 열처리 및 경도제어 요소로 만들어진 NACE 밸브를 제공합니다. KITZ Cast Steel Gate Valve를 위한 전형적인 NACE 재질은 아래에 나와있습니다. NACE 경도 요구조건은 KITZ의 Trim 에 부합하지 않습니다. 따라서 KITZ Steel Valve는 특정한 조건에서만 가능합니다.

Valve Parts	ASTM Specification	NACE Hardness
Body/bonnet	A216 WCB	≤ HRC 22 (237 HB)
Disc	A216 WCB or AISI Type 410 or A217 CA15	
Disc seat	*13Cr deposit or AISI Type 410	
Gland	*AISI Type 410	
Stem		
Bonnet bushing	HF**	≥ 350 HB
Body seat surface	A193 B7	—
Bonnet bolts	A193 B7M***	≤ HRC 22
	A194 2H	—
Bonnet nuts	A194 2HM***	≤ HRC 22

\*Double tempered. (Three step process)

\*\*Co-Cr-W Alloy deposited for hard facing.

\*\*\*The general requirements conform to NACE MR0175 standard.

User 는 SSC-resistant bolt 및 Nut 사용할때, 장비의 Pressure-Temperature 등급을 낮출 필요가 있다는 점을 유념해야 합니다. 다른 정보는 KITZ로 연락 주십시오.

# Inspection and Warranty Policy of KITZ Corporation

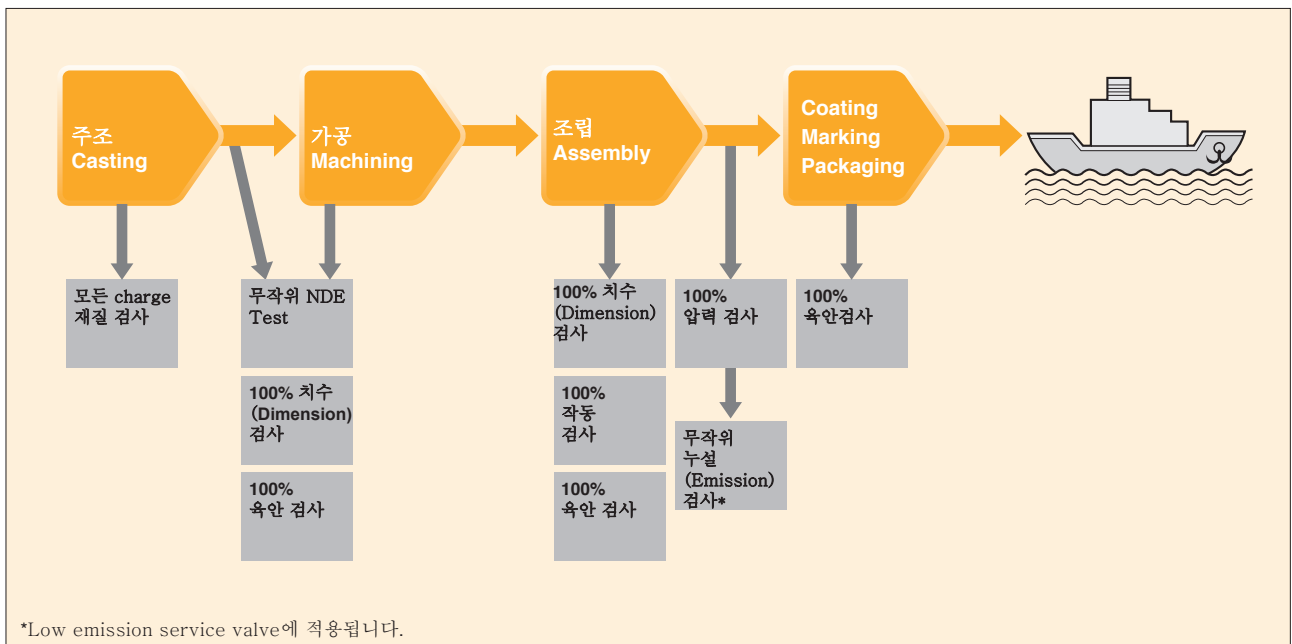
KITZ의 모든 주강(Cast Carbon Steel) 및 저 합금강(Low Alloy Steel) 밸브는 API598 조건에 따라 압력시험(Pressure Test)을 실시합니다. 제조업체에서의 재질 테스트 보고서와 검수 증명서는 요구에 따라 제공 가능한 반면, 밸브 설치시 12개월까지 제품보장이 가능하며, KITZ Corporation 자사 공장으로부터 출하 후 18개월이 초과되는 시점에서는 제품보장이 불가능 합니다.

KITZ Corporation에서 제조되는 밸브는 아래에 열거된 다양한 테스트와 검수과정을 거칩니다. 사전에 명시 되지않는 이상, 모든 KITZ Cast Steel 밸브는 테스트 및 검수절차와 평가기준을 따라야 합니다.

Test/Inspection Item	Method	Evaluation
화학성분분석, Chemical composition analysis		Relevant ASTM Stds.
기계적 특성시험, Mechanical property test	ASTM A370 / E8	Relevant ASTM Stds.
압력 검사, Pressure tests	API 598	API 598
방사선 검사, Radiographic inspection	ASTM E94	ASME B16.34
자분검사, Wet magnetic particle inspection	ASTM E709	
액상 침투 검사, Liquid penetrant inspection	ASTM E165	
저온충격시험, Low temperature impact test	ASTM A370 / E23	ASTM A352
치수 검사, Dimensional inspection		Relevant Valve Stds.
외관 검사, Visual inspection		MSS SP-55
누설 검사, Emission test*	EPA Method 21 and KITZ Std.	KITZ Std.

\* Low emission service valves에 적용 가능.

## Typical KITZ Inspection Flow





# KITZ Low Emission Service Valves

미국의 경우, 1990년 청정환경법(the Federal Clean Air Act)이 극적으로 개정되어 공장 장비에서 비산 배출(Fugitive Emission) 또는 독성가스 및 화학물질의 누출 수준을 95% 감소시키는 새로운 환경 보호정책을 실현했습니다. 1994년 4월에 공표된 새로운 법에 따라 환경보호국이 지정한 독성가스를 취급하는 모든 공장에서 500ppm을 초과하는 누출이 있는지 모니터링 해야하고, 파손이 있는 부분은 즉각수리조치가 취해졌습니다. 캘리포니아는 1997년 이후 북 캘리포니아 지역의 환경오염을 99% 감소시키기 위해 100ppm의 최대 누출량을 요구하는 방법으로 연방법을 초월하는 정책을 세웠습니다.

KITZ사의 Low Emission Valve는 수년의 시행착오 끝에 만들어진 결과이며, 최대 100ppm의 누출량을 충족시키기 위하여 설계되고 제조, 공정 되었으며 검수과정을 거쳤습니다. 해당 사양은 KITZ의 Class 150, 300, 600인 Flange and But-welding End Carbon 및 Low Alloy Steel 밸브이며 북미에서도 사용가능한 표준사양입니다. 표준밸브를 저 배출 성능으로 향상시키기 위한 주요 설계기능은 아래와 같습니다.

## Gland packing

KITZ의 기존 "SEALEVER®" Flexible Graphite Packing Set는 4개의 Dieformed Flexible Graphite Ring과 2개의 Braided Flexible Graphite Ring으로 구성되어있으며, Rating 300#이상의 밸브를 위한 Spacer Bush와 결합되어 있습니다.

\*US Patent No. 5522603 & 5573253. Other patents registered or pending worldwide.

## Bonnet gaskets (including check valve cover gaskets)

Class 150 : Flexible graphite sheet with stainless steel insert or corrugated metal with flexible graphite and permeation protective barrier for low emission service

Class 300: Spiral wound (flexible graphite filler and stainless steel hoop) with a stainless steel inner ring

Class 600 & above : Ring joint metal gasket

\*Class 600 SCOHS: Spiral wound. (flexible graphite filler and stainless steel hoop)

## Diametrical interface clearance

20 to 32 mils (0.5 to 0.8 mm) : Stem to gland

20 to 32 mils (0.5 to 0.8 mm) : Stem to bonnet bushing

4 to 12 mils (0.1 to 0.3 mm) : Gland to stuffing boxes

## Stem

16~32 RMS 표면 마감입니다. 직선성(Straightness)과 원형성(Roundness)은 KITZ 설계 및 제조표준에 따라 정확하게 조절됩니다.

## Stuffing box

최대 125 RMS 표면 마감입니다. 원통도(Cylindricity)와 수직도(Verticality)는 KITZ 설계 및 제조 표준에 따라 정확하게 조절됩니다.

## Plug gaskets for check valves

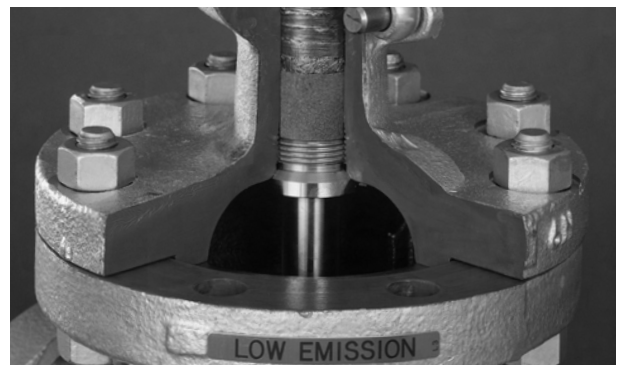
Class 150/300 : Flexible graphite sheet with stainless steel insert and permeation protective barrier.

Class 600 & above : Spiral wound metal with flexible graphite filled

\*Except for the 150-600 SCOHS.

## Product identification

주황색으로 "LOW EMISSION"이라는 글자가 표시된 스테인리스강 ID 플레이트는 Bonnet Flange에 용접되어 있습니다.



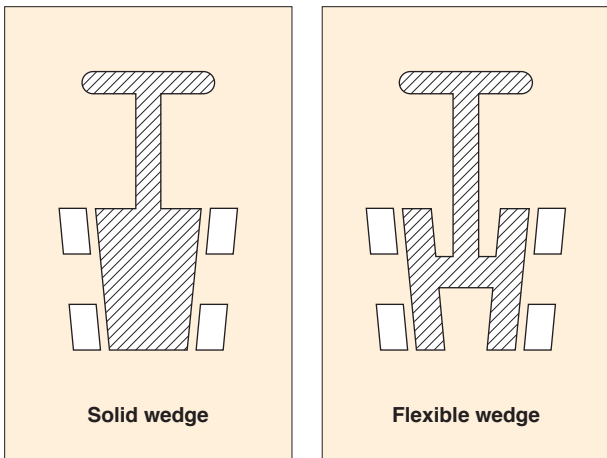
## YRT Emission Test Results

Lloyd's Register of Shipping의 자체 실험 테스트 및 인증 외에도, 한 사용자의 테스트 사양에 따라 미국 Maine주 Yarmouth Research and Technology에서 KITZ 공칭 크기 6 Class 300 게이트 밸브에 대한 타사 성능테스트가 수행되었습니다. 테스트 조건은 350°F (177°C)의 열 사이클을 통해 99% 메탄 기압 밸브의 전례 없는 3500 사이클 작동이 포함되었고, 밸브 Stem은 지면에 수평으로 위치했으며, 밸브 Gland 영역을 밀봉한 알루미늄 호일 Housing에서 100 사이클마다 누출 수준을 모니터링 했습니다. 이러한 극심한 테스트 조건에도 불구하고, 결과는 지난 몇 년동안 KITZ 연구소에서 수행한 테스트 결과와 매우 일치 했습니다.

## Design Features of KITZ Gate Valve Wedges (Discs)

API 600 제 5.6.1.1항과 5.6.1.2항에 의해 승인된 4가지 모양의 Wedge Disc 중에서, KITZ사는 Class 900/1500 크기 2B~4B와 같은 소형밸브에는 Solid Wedge를 적용하고, 기타 압력등급의 모든 Size에는 Flexible Wedge를 사용합니다.

H-Shaped Flexible Wedge는 단단하고 안전한 상호연결을 위해 Body Seat의 형태를 따라 기계적 유연성(Mechanical Flexibility)을 특징으로 갖습니다. 이는 Gate Valve가 Valve Body에 일시적인 변형이 발생할수도 있는 높은 온도와 압력의 범위에서 사용될 때 중요한 역할을 합니다. Flexible Wedge가 사용될 때, Operational Torque는 감소하고, Seat마모가 줄어들며, 밸브가 더 Tight하게 닫힙니다.



견고하게 디자인 된 KITZ의 Wedge Gate(Solid Wedge Gate)는 용접작업 없이 단조 또는 주조된 작은 조각들로 제작이 됩니다. 특수 열 처리된 Wedge는 밸브 Stem의 일체형 T-head와 단단히 결합되어 있으며, 가능한 Stem과 Wedge 연결부의 우수한 내구성을 위해 견고하게 설계되고 특수열처리를 합니다. API 600 제 5.8.8항은 특히 Stem과 Wedge 연결부위의 기계적 강도의 중요성을 강조합니다.

또 다른 독특한 특징으로는, KITZ Wedge Gate는 항상 정확하게 Centering을 유지하도록 설계되었고, 누수없는 연결(Leakfree-contact)을 위해 섬세하게 래핑(Lapping)이 됩니다.



Side View



Front View



Stem-to-Wedge Connection

# Cast Carbon Steel Gate Valve

Bolted bonnet, Outside screw-and-yoke, Rising stem, Non-rising handwheel, Flexible wedge.

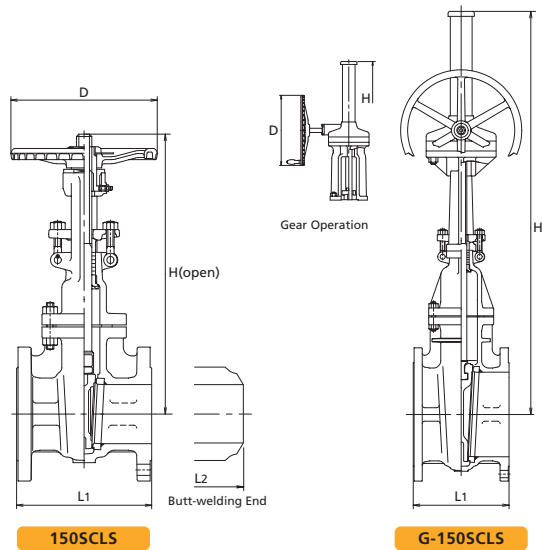


Fig	End Connections
(G-)150SCLs	RF-flanged ends.
(G-)W150SCLs	Butt-welding ends.

### Standard materials of parts

Parts	Materials
Body	ASTM A216 Gr.WCB
Bonnet	ASTM A216 Gr.WCB
Stem	403SS
Disc	A217 Gr.CA15 or A216 Gr.WCB+13Cr
Body seat ring	Carbon Steel+HF*
Gland	403SS
Gland packing	Flexible Graphite
Gland flange	Cast Steel
Handwheel	Ductile iron
Gasket	See Page 5
Bonnet bolt/nut	ASTM A193 Gr.B7/A194 Gr.2H
Gland bolt/nut	Carbon Steel
Bonnet bushing	403SS
Yoke sleeve	Ductile Ni-Resist
Grease nipple	Carbon steel

\*Hard facing with Co-Cr-W Alloy.  
Note: 표준 Seat 재질 및 구조는 페이지 2와 4를 참조하십시오.

### Dimensions

Nominal Size		1½	2	2½	3	4	5	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
		40	50	65	80	100	125	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900
L1	in	6.50	7.00	7.50	8.00	9.00	10.0	10.5	11.5	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20.0	22.0	24.0	24.0	26.0	28.0	28.0
	mm	165	178	190	203	229	254	267	292	330	356	381	406	432	457	483	508	559	610	610	660	711	711
L2	in	—	8.50	9.50	11.1	12.0	15.0	15.9	16.5	18.0	19.8	22.5	24.0	26.0	28.0	30.0	32.0	34.0	36.0	36.0	38.0	40.0	40.0
	mm	—	216	241	283	305	381	403	419	457	502	572	610	660	711	762	813	864	914	914	965	1016	1016
H*	in	15.2	15.2	17.0	20.0	23.3	25.9	29.8	37.8	45.8	53.6	61.9	66.6	74.3	83.6	91.6	98.4	111.6	119.0	124.2	128.6	138.1	149.0
	mm	385	385	432	509	592	658	758	959	1162	1362	1572	1692	1888	2123	2326	2498	2835	3022	3154	3267	3507	3785
D	in	7.87	7.87	7.87	9.84	9.84	11.8	11.8	13.8	15.8	17.7	23.6	23.6	26.8	26.8	29.9	29.9	19.7	23.6	23.6	23.6	23.6	23.6
	mm	200	200	200	250	250	300	300	350	400	450	600	600	680	680	760	760	500	600	600	600	600	600

\*Size 26 and larger : Gear operation type.  
Refer to "Standard Product Range" on page 01.

Bolted bonnet, Outside screw-and-yoke, Rising stem, Non-rising handwheel, Flexible wedge.

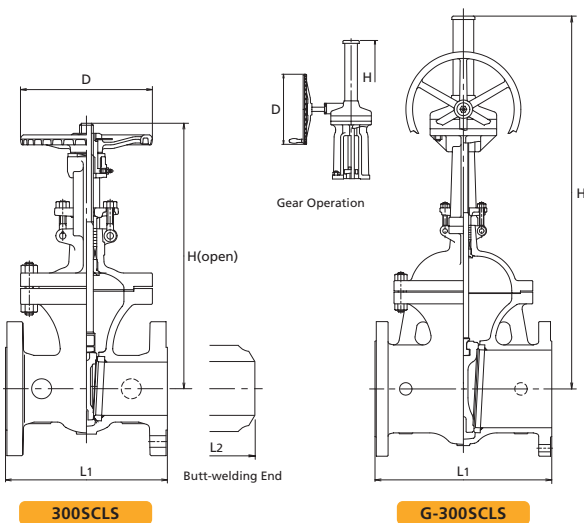


Fig	End Connections
(G-)300SCLs	RF-flanged ends.
(G-)W300SCLs	Butt-welding ends.

### Standard materials of parts

Parts	Materials
Body	ASTM A216 Gr.WCB
Bonnet	ASTM A216 Gr.WCB
Stem	403SS
Disc	403SS or A217 Gr.CA15 (Size 1-½-4) A216 Gr.WCB+13Cr (Size 5-24)
Body seat ring	Carbon Steel+HF*
Gland	403SS
Gland packing	Flexible Graphite
Gland flange	Carbon Steel/Cast Steel
Handwheel	Ductile iron
Gasket	See Page 5
Bonnet bolt/nut	ASTM A193 Gr.B7/A194 Gr.2H/Alloy Steel
Gland bolt/nut	Carbon Steel
Bonnet bushing	403SS
Yoke sleeve	Ductile Ni-Resist
Grease nipple	Carbon steel

\*Hard facing with Co-Cr-W Alloy.  
Note: 표준 Seat 재질 및 구조는 페이지 2와 4를 참조하십시오.

### Dimensions

Nominal Size		1½	2	2½	3	4	5	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
		40	50	65	80	100	125	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900
L1	in	7.48	8.50	9.49	11.1	12.0	15.0	15.9	16.5	18.0	19.8	30.0	33.0	36.0	39.0	43.0	45.0	49.0	53.0	55.0	60.0	64.0	68.0
	mm	190	216	241	283	305	381	403	419	457	502	762	838	914	991	1092	1143	1245	1346	1397	1524	1626	1727
L2	in	—	8.50	9.50	11.1	12.0	15.0	15.9	16.5	18.0	19.8	30.0	33.0	36.0	39.0	43.0	45.0	49.0	53.0	55.0	60.0	64.0	68.0
	mm	—	216	241	283	305	381	403	419	457	502	762	838	914	991	1092	1143	1245	1346	1397	1524	1626	1727
H*	in	16.3	16.3	18.0	20.9	24.3	27.3	31.2	39.9	47.9	57.4	61.5	69.5	76.1	84.1	93.1	100.1	112.0	123.8	131.3	143.7	150.0	153.5
	mm	413	413	456	530	618	694	793	1014	1216	1458	1563	1766	1932	2137	2364	2542	2845	3145	3335	3650	3810	3900
D	in	7.87	7.87	7.87	9.84	9.84	11.8	13.8	15.8	17.7	23.6	23.6	26.8	26.8	29.9	29.9	35.8	23.6	23.6	23.6	23.6	23.6	23.6
	mm	200	200	200	250	250	300	350	400	450	600	600	680	680	760	760	910	600	600	600	600	600	600

\*Size 26 and larger : Gear operation type.  
Refer to "Standard Product Range" on page 01.

# Cast Carbon Steel Gate Valve

Bolted bonnet, Outside screw-and-yoke, Rising stem, Non-rising handwheel, Flexible wedge.

Class 600

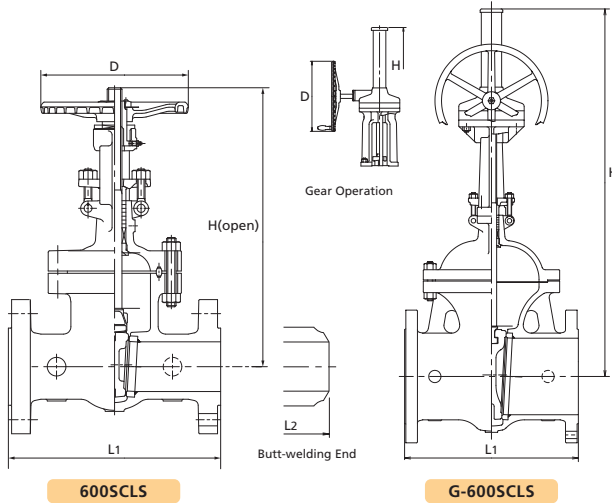


Fig	End Connections
(G-)600SCLS	RF-flanged ends.
(G-)W600SCLS	Butt-welding ends.

## Standard materials of parts

Parts	Materials
Body	ASTM A216 Gr.WCB
Bonnet	ASTM A216 Gr.WCB
Stem	403SS
Disc	403SS or A217 Gr.CA15 (Up to Size 4) A216 Gr.WCB+13Cr (Size 5 & over)
Body seat ring	Carbon Steel+HF*
Gland	403SS
Gland packing	Flexible Graphite
Gland flange	Carbon Steel/Cast Steel
Handwheel	Ductile iron
Gasket	See Page 5
Bonnet bolt/nut	ASTM A193 Gr.B7/A194 Gr.2H
Gland bolt/nut	Carbon Steel
Bonnet bushing	403SS
Yoke sleeve	Ductile Ni-Resist
Grease nipple	Carbon steel

\*Hard facing with Co-Cr-W Alloy.  
Note: 표준 Seat 재질 및 구조는 페이지 2와 4를 참조하십시오.

## Dimensions

Nominal Size		2	2½	3	4	5	6	8	10	12	14	16	18	20	22	24
		50	65	80	100	125	150	200	250	300	350	400	450	500	550	600
L <sub>1</sub>	in	11.5	13.0	14.0	17.0	20.0	22.0	26.0	31.0	33.0	35.0	39.0	43.0	47.0	51.0	55.0
	mm	292	330	356	432	508	559	660	787	838	889	991	1092	1194	1295	1397
L <sub>2</sub>	in	11.5	13.0	14.0	17.0	20.0	22.0	26.0	31.0	33.0	35.0	39.0	43.0	47.0	51.0	55.0
	mm	292	330	356	432	508	559	660	787	838	889	991	1092	1194	1295	1397
H*	in	17.6	19.6	21.5	26.3	30.4	35.2	43.1	49.5	57.6	62.7	70.0	81.5	88.8	98.4	107.5
	mm	446	497	545	667	771	893	1094	1257	1464	1593	1779	2070	2256	2500	2730
D	in	7.90	9.80	9.80	11.8	15.7	17.7	23.6	23.6	26.8	29.9	29.9	35.8	23.6	23.6	24.0
	mm	200	250	250	300	400	450	600	600	680	760	760	910	600	600	610

\*Size 20 and larger : Gear operation type.  
Refer to "Standard Product Range" on page 01.

Bolted bonnet, Outside screw-and-yoke, Rising stem, Non-rising handwheel, Solid wedge (Nominal Size 2 to 4) or Flexible wedge (Nominal Size 6 & larger).

Class 900

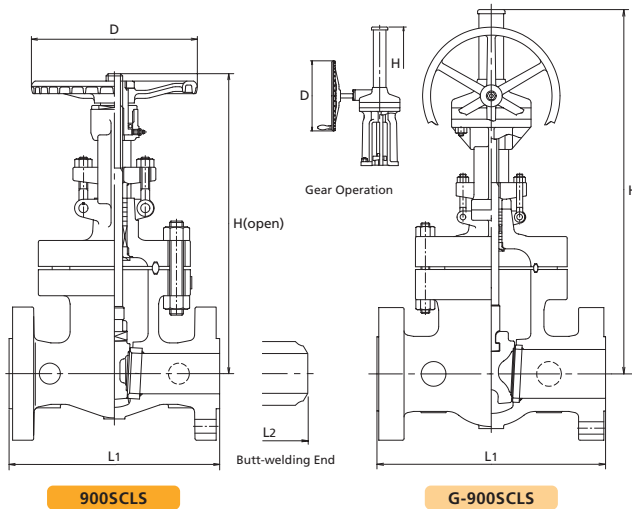


Fig	End Connections
(G-)900SCLS	RF-flanged ends.
(G-)W900SCLS	Butt-welding ends.

## Standard materials of parts

Parts	Materials
Body	ASTM A216 Gr.WCB
Bonnet	ASTM A216 Gr.WCB
Stem	403SS
Disc	403SS (Size 2-4) A216 Gr.WCB+13Cr (Size 6 & over)
Body seat ring	Carbon Steel+HF*
Gland	403SS
Gland packing	Flexible Graphite
Gland flange	Carbon Steel
Handwheel	Ductile iron
Gasket	See Page 5
Bonnet bolt/nut	ASTM A193 Gr.B7/A194 Gr.2H
Gland bolt/nut	Carbon Steel
Bonnet bushing	403SS
Yoke sleeve	Ductile Ni-Resist
Grease nipple	Carbon steel

\*Hard facing with Co-Cr-W Alloy.  
Note: 표준 Seat 재질 및 구조는 페이지 2와 4를 참조하십시오.

## Dimensions

Nominal Size		2	3	4	6	8	10	12	14	16	18	20	24
		50	80	100	150	200	250	300	350	400	450	500	600
L <sub>1</sub>	in	14.5	15.0	18.0	24.0	29.0	33.0	38.0	40.5	44.5	48.0	52.0	61.0
	mm	368	381	457	610	737	838	965	1029	1130	1219	1321	1549
L <sub>2</sub>	in	14.5	15.0	18.0	24.0	29.0	33.0	38.0	40.5	44.5	48.0	52.0	61.0
	mm	368	381	457	610	737	838	965	1029	1130	1219	1321	1549
H*	in	20.5	24.5	27.8	35.4	42.8	50.6	59.0	67.5	72.0	85.8	95.9	105.5
	mm	520	621	706	900	1087	1285	1498	1714	1830	2180	2435	2680
D	in	9.80	11.8	13.8	19.7	23.6	26.8	29.9	23.6	23.6	24.0	24.0	24.0
	mm	250	300	350	500	600	680	760	600	600	600	610	610

\*Size 14 and larger : Gear operation type.  
Refer to "Standard Product Range" on page 01.

# Cast Carbon Steel Gate Valve

Bolted bonnet, Outside screw-and-yoke, Rising stem, Non-rising handwheel, Solid wedge (Nominal Size 2 to 4) or Flexible wedge (Nominal Size 6& larger).

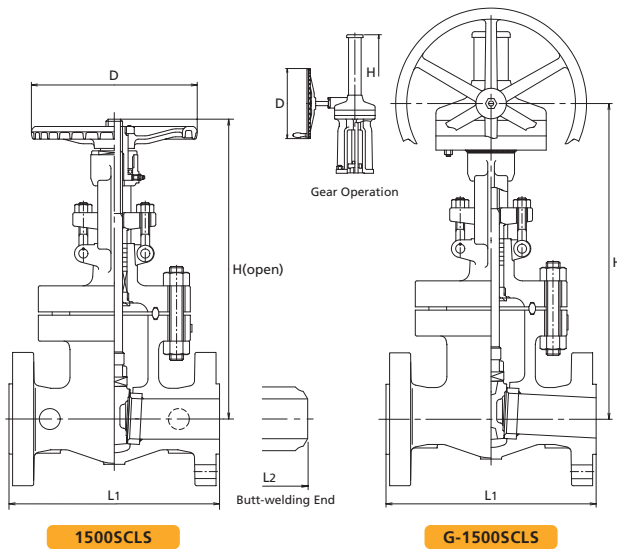


Fig	End Connections
(G-)1500SCLS	RF-flanged ends.
(G-)W1500SCLS	Butt-welding ends.

## Standard materials of parts

Parts	Materials
Body	ASTM A216 Gr.WCB
Bonnet	ASTM A216 Gr.WCB
Stem	403SS
Disc	403SS (Up to Size 4) A216 Gr.WCB+13Cr (Size 6 & over)
Body seat ring	Carbon Steel+HF*
Gland	403SS
Gland packing	Flexible Graphite
Gland flange	Carbon Steel
Handwheel	Ductile iron
Gasket	See Page 5
Bonnet bolt/nut	ASTM A193 Gr.B7/A194 Gr.2H
Gland bolt/nut	Carbon Steel
Bonnet bushing	403SS
Yoke sleeve	Ductile Ni-Resist
Grease nipple	Carbon steel

\*Hard facing with Co-Cr-W Alloy.  
Note: 표준 Seat 재질 및 구조는 페이지 2와 4를 참조하십시오.

## Dimensions

Nominal Size		2	2½	3	4	6	8	10	12	14	16
		50	65	80	100	150	200	250	300	350	400
L <sub>1</sub>	in	14.5	16.5	18.5	21.5	27.8	32.8	39.0	44.5	49.5	54.5
	mm	368	419	470	546	705	832	991	1130	1257	1384
L <sub>2</sub>	in	14.5	16.5	18.5	21.5	27.8	32.8	39.0	44.5	49.5	54.5
	mm	368	419	470	546	705	832	991	1130	1257	1384
H*	in	22.0	25.0	27.0	30.4	40.6	49.1	58.1	65.2	68.9	81.1
	mm	559	635	685	772	1031	1248	1475	1656	1750	2060
D	in	9.80	11.8	13.8	15.7	23.6	26.8	35.8	35.8	23.6	24.0
	mm	250	300	350	400	600	680	910	910	600	610

\*Size 14 and larger : Gear operation type.  
Refer to "Standard Product Range" on page 01.

# Cast Carbon Steel Globe Valve

Bolted bonnet, Outside screw-and-yoke, Rising stem handwheel, Swivel disc.

Class 150

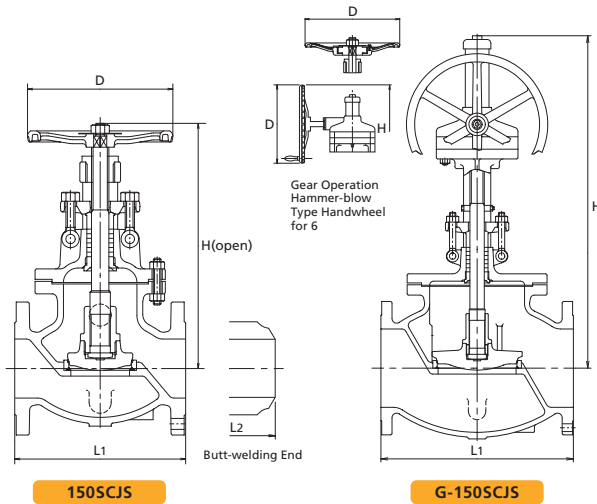


Fig	End Connections
(G-)150SCJS	RF-flanged ends.
(G-)W150SCJS	Butt-welding ends.

## Standard materials of parts

Parts	Materials
Body	ASTM A216 Gr.WCB
Bonnet	ASTM A216 Gr.WCB
Stem	403SS
Disc	•403SS or A217 Gr.CA15 or A216 Gr.WCB+13Cr (Size 1-1/2-5) •A105+13Cr or A216 Gr.WCB+13Cr (Size 6 only) •A105+13Cr (Up to Size 12) •A216 Gr.WCB+13Cr (Size 14 & over)
Lock nut	403SS
Body seat ring	Carbon Steel+HF*
Gland	403SS
Gland packing	Flexible Graphite
Gland flange	Carbon Steel/Cast Steel
Handwheel	Ductile iron
Gasket	See Page 5
Bonnet bolt/nut	ASTM A193 Gr.B7/A194 Gr.2H
Gland bolt/nut	Carbon Steel
Bonnet bushing	403SS
Yoke bush	Ductile Ni-Resist

\*Hard facing with Co-Cr-W Alloy.

Note: 표준 Seat 재질 및 구조는 페이지 2와 4를 참조하십시오.

## Dimensions

Nominal Size		1 1/2	2	2 1/2	3	4	5	6	8	10	12	14	16	18
		40	50	65	80	100	125	150	200	250	300	350	400	450
L <sub>1</sub>	in	6.50	7.99	8.50	9.49	11.5	14.0	15.9	19.5	24.5	27.5	31.0	35.9	38.5
	mm	165	203	216	241	292	356	406	495	622	698	787	914	978
L <sub>2</sub>	in	—	7.99	8.50	9.49	11.5	14.0	15.9	19.5	24.5	37.5	31.0	35.9	38.5
	mm	—	203	216	241	292	356	406	495	622	698	787	914	978
H*	in	13.0	13.0	14.9	15.3	18.0	19.1	20.2	36.6	38.4	41.3	43.5	48.2	50.2
	mm	331	331	379	389	458	484	513	929	975	1049	1106	1224	1275
D	in	7.90	7.90	9.80	9.80	9.80	11.8	13.8	15.7	19.7	19.7	19.7	23.6	23.6
	mm	200	200	250	250	250	300	350	500	500	500	500	600	600

\*Size 8 and larger : Gear operation type.

Refer to "Standard Product Range" on page 01.

Class 300

Bolted bonnet, Outside screw-and-yoke, Rising stem handwheel, Swivel disc.

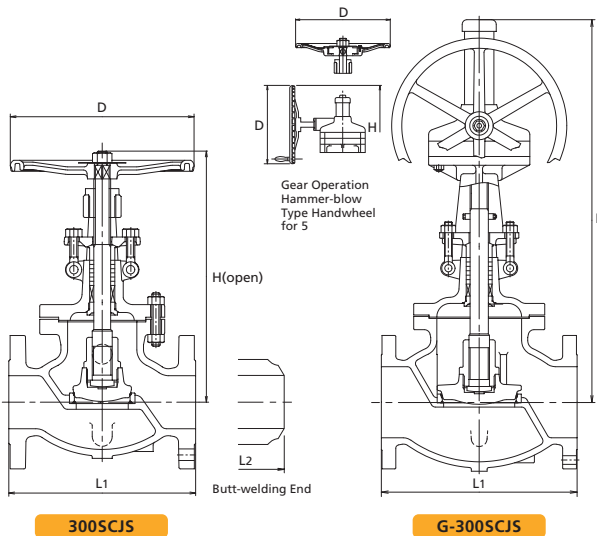


Fig	End Connections
(G-)300SCJS	RF-flanged ends.
(G-)W300SCJS	Butt-welding ends.

## Standard materials of parts

Parts	Materials
Body	ASTM A216 Gr.WCB
Bonnet	ASTM A216 Gr.WCB
Stem	403SS
Disc	403SS or A217 Gr.CA15 or A216 Gr.WCB+13Cr or A105+13Cr
Lock nut	403SS
Body seat ring	Carbon Steel+HF*
Gland	403SS
Gland packing	Flexible Graphite
Gland flange	Carbon Steel/Cast Steel
Handwheel	Ductile iron
Gasket	See Page 5
Bonnet bolt/nut	ASTM A193 Gr.B7/A194 Gr.2H
Gland bolt/nut	Carbon Steel
Bonnet bushing	403SS
Yoke bush	Ductile Ni-Resist

\*Hard facing with Co-Cr-W Alloy.

Note: 표준 Seat 재질 및 구조는 페이지 2와 4를 참조하십시오.

## Dimensions

Nominal Size		1 1/2	2	2 1/2	3	4	5	6	8	10	12	14	16
		40	50	65	80	100	125	150	200	250	300	350	400
L <sub>1</sub>	in	9.02	10.5	11.5	12.5	14.0	15.8	17.5	22.0	24.5	28.0	33.0	34.0
	mm	229	267	292	318	356	400	444	559	622	711	838	864
L <sub>2</sub>	in	—	10.5	11.5	12.5	14.0	15.8	17.5	22.0	24.5	28.0	33.0	34.0
	mm	—	267	292	318	356	400	444	559	622	711	838	864
H*	in	14.2	14.2	16.9	17.2	20.0	24.0	38.9	41.9	45.0	46.7	57.1	55.5
	mm	361	361	428	436	509	610	989	1064	1142	1187	1450	1410
D	in	7.90	7.90	9.80	9.80	13.8	15.7	17.7	19.7	23.6	23.6	23.6	23.6
	mm	200	200	250	250	350	400	500	500	600	600	600	600

\*Size 6 and larger : Gear operation type.

Refer to "Standard Product Range" on page 01.

# Cast Carbon Steel Globe Valve

Bolted bonnet, Outside screw-and-yoke, Rising stem handwheel, Swivel disc.

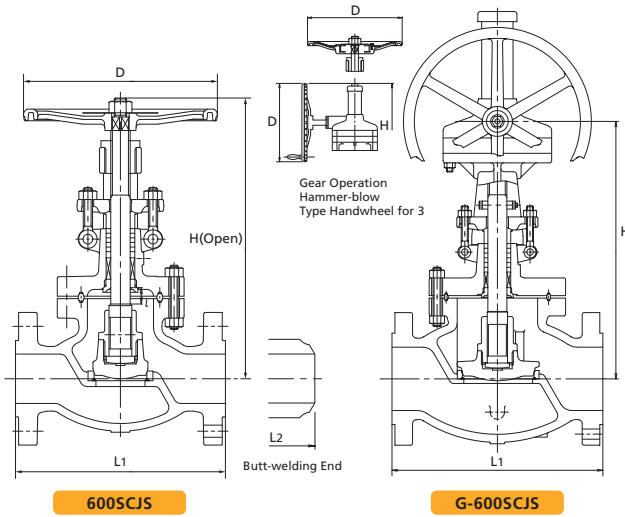


Fig	End Connections
(G-)600SCJS	RF-flanged ends.
(G-)W600SCJS	Butt-welding ends.

## Standard materials of parts

Parts	Materials
Body	ASTM A216 Gr.WCB
Bonnet	ASTM A216 Gr.WCB
Stem	403SS
Disc	•403SS or A217 Gr.CA15 or A216 Gr.WCB+13Cr •403SS (Size 4 only) A105+13Cr (Size 6-10) A216 Gr.WCB+13Cr (Size 12 only)
Lock nut	403SS
Body seat ring	Carbon Steel+HF*
Gland	403SS
Gland packing	Flexible Graphite
Gland flange	Carbon Steel/Cast Steel
Handwheel	Ductile iron
Gasket	See Page 5
Bonnet bolt/nut	ASTM A193 Gr.B7/A194 Gr.2H
Gland bolt/nut	Carbon Steel or Alloy Steel
Bonnet bushing	403SS
Yoke bush	Ductile Ni-Resist

\*Hard facing with Co-Cr-W Alloy.  
Note: 표준 Seat 재질 및 구조는 페이지 2와 4를 참조하십시오.

## Dimensions

Nominal Size	2		2½		3		4		5		6		8		10		12	
	50		65		80		100		125		150		200		250		300	
L <sub>1</sub>	in	11.5	13.0	14.0	17.0	20.0	22.0	26.0	31.0	33.0								
	mm	292	330	356	432	508	559	660	787	838								
L <sub>2</sub>	in	11.5	13.0	14.0	17.0	20.0	22.0	26.0	31.0	33.0								
	mm	292	330	356	432	508	559	660	787	838								
H*	in	16.0	18.7	20.0	35.3	36.6	39.1	44.1	55.9	62.0								
	mm	406	474	508	897	930	993	1121	1420	1575								
D	in	9.80	11.8	13.8	19.7	19.7	19.7	23.6	23.6	24.0								
	mm	250	300	350	500	500	500	600	610	610								

\*Size 4 and larger : Gear operation type.  
Refer to "Standard Product Range" on page 01.

Bolted bonnet, Outside screw-and-yoke, Rising stem, Swivel disc.

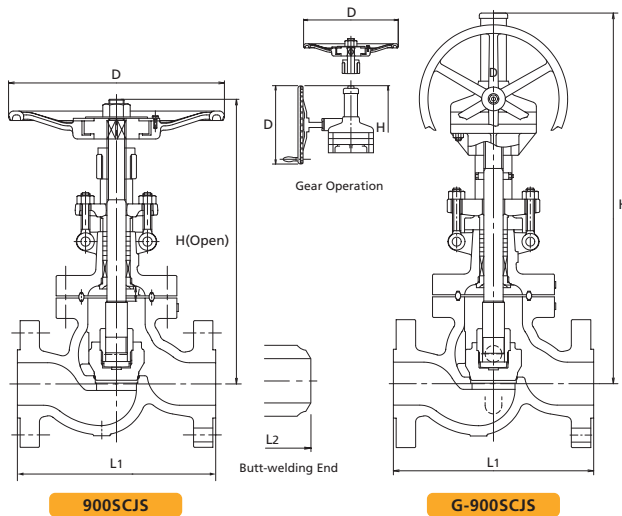


Fig	End Connections
(G-)900SCJS	RF-flanged ends.
(G-)W900SCJS	Butt-welding ends.

## Standard materials of parts

Parts	Materials
Body	ASTM A216 Gr.WCB+HF*
Bonnet	ASTM A216 Gr.WCB
Stem	403SS
Disc	403SS (Size 3&4) A105+13Cr (Size 6&8)
Lock nut	403SS
Gland	403SS
Gland packing	Flexible Graphite
Gland flange	Carbon Steel
Gasket	See Page 5
Bonnet bolt/nut	ASTM A193 Gr.B7/A194 Gr.2H
Gland bolt/nut	Carbon Steel
Bonnet bushing	403SS
Yoke bush	Ductile Ni-Resist

\*Hard facing with Co-Cr-W Alloy.  
Note: 표준 Seat 재질 및 구조는 페이지 2와 4를 참조하십시오.

## Dimensions

Nominal Size	3		4		6		8	
	80		100		150		200	
L <sub>1</sub>	in	15.0	18.0	24.0	29.0			
	mm	381	457	610	737			
L <sub>2</sub>	in	15.0	18.0	24.0	29.0			
	mm	381	457	610	737			
H*	in	35.4	37.7	46.2	54.4			
	mm	900	957	1173	1381			
D	in	19.7	19.7	23.6	23.6			
	mm	500	500	600	600			

\*Gear operation type.

# Cast Carbon Steel Globe Valve

Bolted bonnet, Outside screw-and-yoke, Rising stem handwheel, Swivel disc.

Class 1500

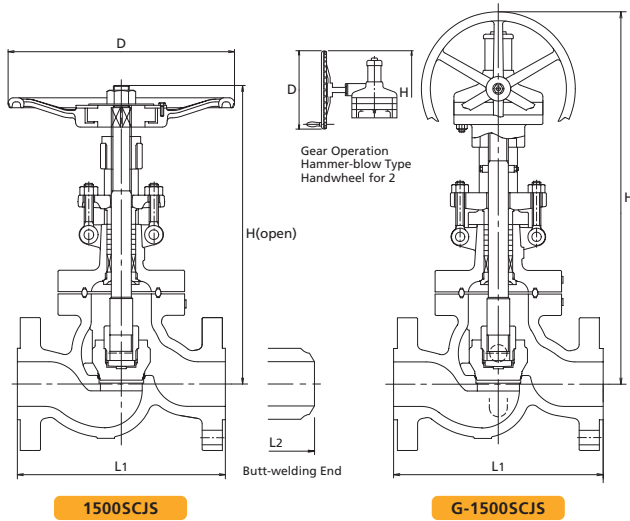


Fig	End Connections
(G-)1500SCJS	RF-flanged ends.
(G-)W1500SCJS	Butt-welding ends.

## Standard materials of parts

Parts	Materials
Body	ASTM A216 Gr.WCB+HF*
Bonnet	ASTM A216 Gr.WCB
Stem	403SS
Disc	403SS (Size 2-1/2-4) A105+13Cr' (Size 6-8)
Lock nut	403SS
Gland	403SS
Gland packing	Flexible Graphite
Gland flange	Carbon Steel
Handwheel	Ductile iron
Gasket	See Page 5
Bonnet bolt/nut	ASTM A193 Gr.B7/A194 Gr.2H
Gland bolt/nut	Carbon Steel
Bonnet bushing	403SS
Yoke bush	Ductile Ni-Resist

\*Hard facing with Co-Cr-W Alloy.

Note: 표준 Seat 재질 및 구조는 페이지 2와 4를 참조하십시오.

## Dimensions

Nominal Size		2	2 1/2	3	4	6	8
		50	65	80	100	150	200
L <sub>1</sub>	in	14.5	16.5	18.5	21.5	27.8	32.8
	mm	368	419	470	546	705	832
L <sub>2</sub>	in	14.5	16.5	18.5	21.5	27.8	32.8
	mm	368	419	470	546	705	832
H*	in	21.3	36.2	38.0	43.4	53.8	55.1
	mm	540	920	964	1102	1366	1400
D	in	13.8	19.7	19.7	23.6	23.6	24.0
	mm	350	500	500	600	600	610

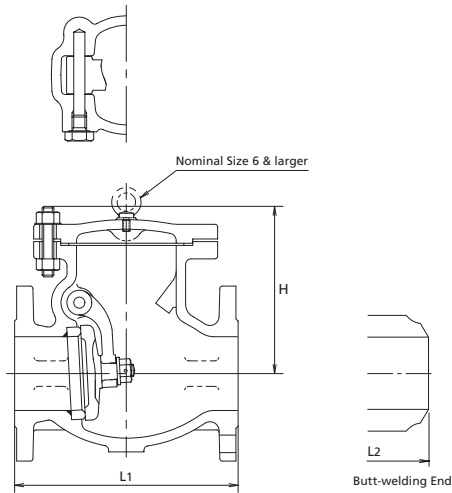
\*Size 2 1/2 and larger : Gear operation type.

Refer to "Standard Product Range" on page 01.



# Cast Carbon Steel Check Valve

Bolted cover, Swing type disc.



150SCOS

Fig	End Connections
150SCOS	RF-flanged ends.
W150SCOS	Butt-welding ends.

## Standard materials of parts

Parts	Materials
Body	ASTM A216 Gr.WCB
Cover	ASTM A105/A216 Gr.WCB
Disc	<ul style="list-style-type: none"> <li>•403SS or A217 Gr.CA15 or A216 Gr.WCB+13Cr (Size 1-1/2-4)</li> <li>•403SS or A216 Gr.WCB+13Cr (Size 5-6)</li> <li>•A216 Gr.WCB+13Cr (Size 8-30)</li> </ul>
Disc nut	ASTM A194 Gr.8
Body seat ring	Carbon Steel+HF*
Cover bolt/nut	ASTM A193 Gr.B7/A194 Gr.2H
Arm	ASTM A216 Gr.WCB or A105
Gasket	See Page 5
Plug	S45c

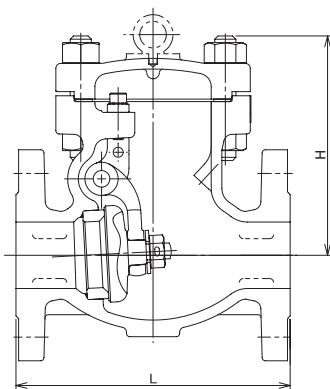
\*Hard facing with Co-Cr-W Alloy.  
 Note: 표준 Seat 재질 및 구조는 페이지 2와 4를 참조하십시오.

## Dimensions

Nominal Size	Nominal Size																		
	1/2	2	2 1/2	3	4	5	6	8	10	12	14	16	18	20	24	26	28	30	
	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	650	700	750	
L <sub>1</sub>	in	6.50	7.99	8.50	9.49	11.5	13.0	14.0	19.5	24.5	27.5	31.0	34.0	38.5	38.5	51.0	51.0	57.0	60.0
	mm	165	203	216	241	292	330	356	495	622	698	787	864	978	978	1295	1295	1448	1524
L <sub>2</sub>	in	—	7.99	8.50	9.49	11.5	13.0	14.0	19.5	24.5	27.5	31.0	34.0	38.5	38.5	51.0	51.0	57.0	60.0
	mm	—	203	216	241	292	330	356	495	622	698	787	864	978	978	1295	1295	1448	1524
H	in	5.20	6.14	6.61	7.28	8.27	9.41	9.84	11.5	13.4	14.8	16.3	17.9	20.0	23.0	26.4	29.1	31.9	34.3
	mm	132	156	168	185	210	239	250	293	340	375	415	455	508	585	670	740	810	871

Refer to "Standard Product Range" on page 01.

Bolted cover, Swing type disc.



150SCOHS

Fig	End Connections
150SCOHS	RF-flanged ends.

## Standard materials of parts

Parts	Materials
Body	ASTM A216 Gr.WCB
Cover	ASTM A105/A216 Gr.WCB
Disc	<ul style="list-style-type: none"> <li>•403SS or A217Gr.CA15 or A216 Gr.WCB+13Cr (Size 1-1/2-4)</li> <li>•403SS or A216 Gr.WCB+13Cr (Size 6)</li> <li>•A216 Gr.WCB+13Cr (Size 8-18)</li> </ul>
Disc nut	ASTM A194 Gr.8
Body seat ring	Carbon Steel+HF*
Cover bolt/nut	ASTM A193 Gr.B7/A194 Gr.2H
Arm	ASTM A105/A216 Gr.WCB
Gasket	See Page 5
Hinge Pin Holder	ASTM A216 Gr.WCB**

\*Hard facing with Co-Cr-W Alloy.  
 \*\*Size 1/2 to 6  
 Note: 표준 Seat 재질 및 구조는 페이지 2와 4를 참조하십시오.

## Dimensions

Nominal Size	Nominal Size												
	1/2	2	2 1/2	3	4	6	8	10	12	14	16	18	
	40	50	65	80	100	150	200	250	300	350	400	450	
L	in	6.50	7.99	8.50	9.49	11.5	14.0	19.5	24.5	27.5	31.0	34.0	38.5
	mm	165	203	216	241	292	356	495	622	698	787	864	978
H	in	5.20	6.14	6.61	7.28	8.27	9.84	11.5	13.4	14.8	16.3	17.9	20.0
	mm	132	156	168	185	210	250	293	340	375	415	455	508

Refer to "Standard Product Range" on page 01.

# Cast Carbon Steel Check Valve

Bolted cover, Swing type disc.

Class 300

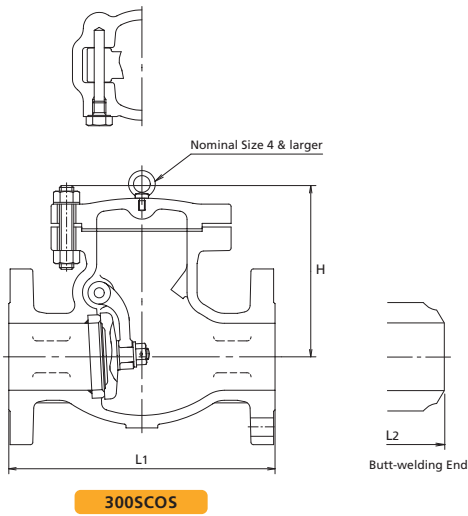


Fig	End Connections
300SCOS	RF-flanged ends.
W300SCOS	Butt-welding ends.

## Standard materials of parts

Parts	Materials
Body	ASTM A216 Gr.WCB
Cover	ASTM A105/A216 Gr.WCB
Disc	<ul style="list-style-type: none"> <li>•403SS or A217 Gr.CA15 or A216 Gr.WCB+13Cr (Size 1-1/2-4)</li> <li>•403SS or A216 Gr.WCB+13Cr (Size 5-6)</li> <li>•A216 Gr.WCB+13Cr (Size 8-30)</li> </ul>
Disc nut	ASTM A194 Gr.8
Body seat ring	Carbon Steel+HF*
Cover bolt/nut	ASTM A193 Gr.B7/A194 Gr.2H
Arm	ASTM A216 Gr.WCB or A105
Gasket	See Page 5
Plug	Carbon Steel

\*Hard facing with Co-Cr-W Alloy.

Note: 표준 Seat 재질 및 구조는 페이지 2와 4를 참조하십시오.

## Dimensions

Nominal Size		1 1/2	2	2 1/2	3	4	5	6	8	10	12	14	16	18	20	24	28	30
		40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	750
L <sub>1</sub>	in	9.49	10.5	11.5	12.5	14.0	15.7	17.5	21.0	24.5	28.0	33.0	34.0	38.5	40.0	53.0	59.0	62.8
	mm	241	267	292	318	356	400	444	533	622	711	838	864	978	1016	1346	1499	1594
L <sub>2</sub>	in	—	10.5	11.5	12.5	14.0	15.7	17.5	21.0	24.5	28.0	33.0	34.0	38.5	40.0	53.0	59.0	62.8
	mm	—	267	292	318	356	400	444	533	622	711	838	864	978	1016	1346	1499	1594
H	in	6.10	6.46	7.48	8.07	9.06	9.84	11.0	13.0	14.6	16.3	19.3	21.4	23.0	25.4	34.1	36.6	38.4
	mm	155	164	190	205	230	250	280	330	370	415	491	543	584	645	865	930	975

Refer to "Standard Product Range" on page 01.

Bolted cover, Swing type disc.

Class 300

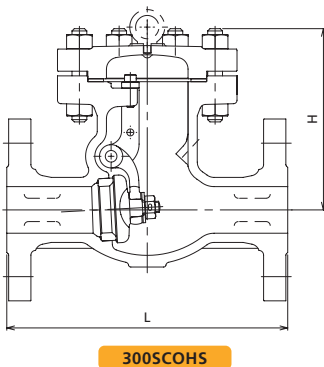


Fig	End Connections
300SCOHS	RF-flanged ends.

## Standard materials of parts

Parts	Materials
Body	ASTM A216 Gr.WCB
Cover	ASTM A105/A216 Gr.WCB
Disc	<ul style="list-style-type: none"> <li>•403SS or A217 Gr.CA15 or A216 Gr.WCB+13Cr (Size 1-1/2-4)</li> <li>•403SS or A216 Gr.WCB+13Cr (Size 6)</li> <li>•A216 Gr.WCB+13Cr (Size 8-16)</li> </ul>
Disc nut	ASTM A194 Gr.8
Body seat ring	Carbon Steel+HF*
Cover bolt/nut	ASTM A193 Gr.B7/A194 Gr.2H
Arm	ASTM A105/A216 Gr.WCB
Gasket	See Page 5
Hinge Pin Holder	ASTM A216 Gr.WCB**

\*Hard facing with Co-Cr-W Alloy.

\*\*Size 1 1/2 to 6

Note: 표준 Seat 재질 및 구조는 페이지 2와 4를 참조하십시오.

## Dimensions

Nominal Size		1 1/2	2	2 1/2	3	4	6	8	10	12	14	16
		40	50	65	80	100	150	200	250	300	350	400
L	in	9.49	10.5	11.5	12.5	14.0	17.5	21.0	24.5	28.0	33.0	34.0
	mm	241	267	292	318	356	444	533	622	711	838	864
H	in	6.10	6.46	7.48	8.07	9.06	11.0	13.0	14.6	16.3	19.3	21.4
	mm	155	164	190	205	230	280	330	370	415	491	543

Refer to "Standard Product Range" on page 01.

# Cast Carbon Steel Check Valve

Bolted cover, Swing type disc.

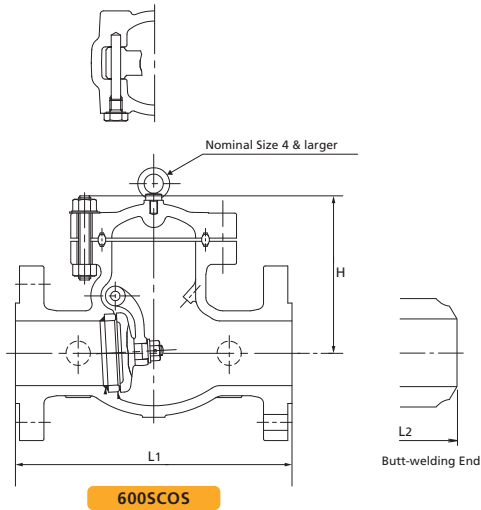


Fig	End Connections
600SCOS	RF-flanged ends.
W600SCOS	Butt-welding ends.

## Standard materials of parts

Parts	Materials
Body	ASTM A216 Gr.WCB
Cover	ASTM A216 Gr.WCB
Disc	•A217 Gr.CA15 (Size 2-4) •4035S (Size 5-6) •A216 Gr.WCB+13Cr (Size 8-24)
Disc nut	ASTM A194 Gr.8
Body seat ring	A105+HF
Cover bolt/nut	ASTM A193 Gr.B7/A194 Gr.2H
Arm	ASTM A216 Gr.WCB
Gasket	See page 5
Plug	S45C

\*Hard facing with Co-Cr-W Alloy.

Note: 표준 Seat 재질 및 구조는 페이지 2와 4를 참조하십시오.

## Dimensions

Nominal Size	2		2½		3		4		6		8		10		12		14		16		18		20		24		
	50		65		80		100		150		200		250		300		350		400		450		500		600		
L <sub>1</sub>	in	11.5	13.0	14.0	17.0	22.0	26.0	31.0	33.0	35.0	39.0	43.0	47.0	55.0													
	mm	292	330	356	432	559	660	787	838	889	991	1092	1194	1397													
L <sub>2</sub>	in	11.5	13.0	14.0	17.0	22.0	26.0	31.0	33.0	35.0	39.0	43.0	47.0	55.0													
	mm	292	330	356	432	559	660	787	838	889	991	1092	1194	1397													
H	in	7.28	8.31	8.82	10.1	13.1	14.6	17.0	20.0	22.4	24.4	25.7	28.9	35.9													
	mm	185	211	224	257	332	372	432	507	568	620	654	733	913													

Refer to "Standard Product Range" on page 01.

Bolted cover, Swing type disc.

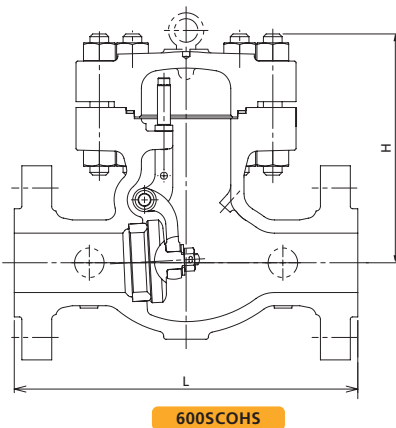


Fig	End Connections
600SCOHS	RF-flanged ends.

## Standard materials of parts

Parts	Materials
Body	ASTM A216 Gr.WCB
Cover	ASTM A216 Gr.WCB
Disc	•4035S or A217 Gr.CA15 or A216 Gr.WCB+13Cr (Size 2-4) •4035S or A216 Gr.WCB+13Cr (Size 6) •A216 Gr.WCB+13Cr (Size 8-12)
Disc nut	ASTM A194 Gr.8
Body seat ring	Carbon Steel+HF*
Cover bolt/nut	ASTM A193 Gr.B7/A194 Gr.2H
Arm	ASTM A105/A216 Gr.WCB
Gasket	See Page 5
Hinge Pin Holder	ASTM A216 Gr.WCB**

\*Hard facing with Co-Cr-W Alloy.

\*\*Size 1½ to 6

Note: 표준 Seat 재질 및 구조는 페이지 2와 4를 참조하십시오.

## Dimensions

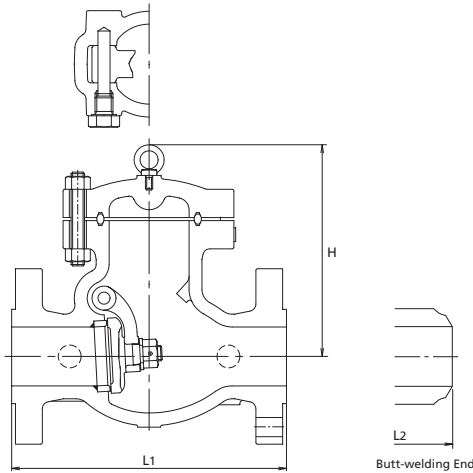
Nominal Size	2		2½		3		4		6		8		10		12	
	50		65		80		100		150		200		250		300	
L	in	11.5	13.0	14.0	17.0	22.0	26.0	31.0	33.0	35.0	39.0	43.0	47.0	55.0		
	mm	292	330	356	432	559	660	787	838	889	991	1092	1194	1397		
H	in	7.68	8.50	9.45	10.0	13.3	15.1	17.6	20.0							
	mm	195	216	240	255	338	383	447	508							

Refer to "Standard Product Range" on page 01.

# Cast Carbon Steel Check Valve

Bolted cover, Swing type disc.

Class 900



900SCOS

Fig	End Connections
900SCOS	RF-flanged ends.
W900SCOS	Butt-welding ends.

### Standard materials of parts

Parts	Materials
Body	ASTM A216 Gr.WCB
Cover	ASTM A216 Gr.WCB
Disc	ASTM A216 Gr.WCB+13Cr
Disc nut	ASTM A194 Gr.8
Body seat ring	Carbon Steel+HF*
Cover bolt/nut	ASTM A193 Gr.B7/A194 Gr.2H
Arm	ASTM A216 Gr.WCB
Gasket	See Page 5
Plug	S45C

\*Hard facing with Co-Cr-W Alloy.  
 Note: 표준 Seat 재질 및 구조는 페이지 2와 4를 참조하십시오.

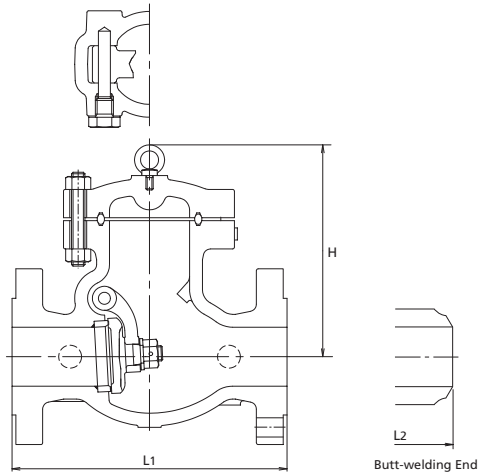
### Dimensions

Nominal Size		3	4	6	8	10	12	14	16	18	20
		80	100	150	200	250	300	350	400	450	500
L <sub>1</sub>	in	15.0	18.0	24.0	29.0	33.0	38.0	40.5	44.5	48.0	52.0
	mm	381	457	610	737	838	965	1029	1130	1219	1321
L <sub>2</sub>	in	15.0	18.0	24.0	29.0	33.0	38.0	40.5	44.5	48.0	52.0
	mm	381	457	610	737	838	965	1029	1130	1219	1321
H	in	11.5	13.6	17.4	20.6	24.4	28.3	31.3	34.6	37.5	41.0
	mm	292	346	441	524	621	720	794	878	952	1042

Refer to "Standard Product Range" on page 01.

Bolted cover, Swing type disc.

Class 1500



1500SCOS

Fig	End Connections
1500SCOS	RF-flanged ends.
W1500SCOS	Butt-welding ends.

### Standard materials of parts

Parts	Materials
Body	ASTM A216 Gr.WCB
Cover	ASTM A216 Gr.WCB
Disc	ASTM A216 Gr.WCB+13Cr
Disc nut	ASTM A194 Gr.8
Body seat ring	A105+HF
Cover bolt/nut	ASTM A193 Gr.B7/A194 Gr.2H
Arm	ASTM A216 Gr.WCB
Gasket	See Page 5
Plug	S45C

\*Hard facing with Co-Cr-W Alloy.  
 Note: 표준 Seat 재질 및 구조는 페이지 2와 4를 참조하십시오.

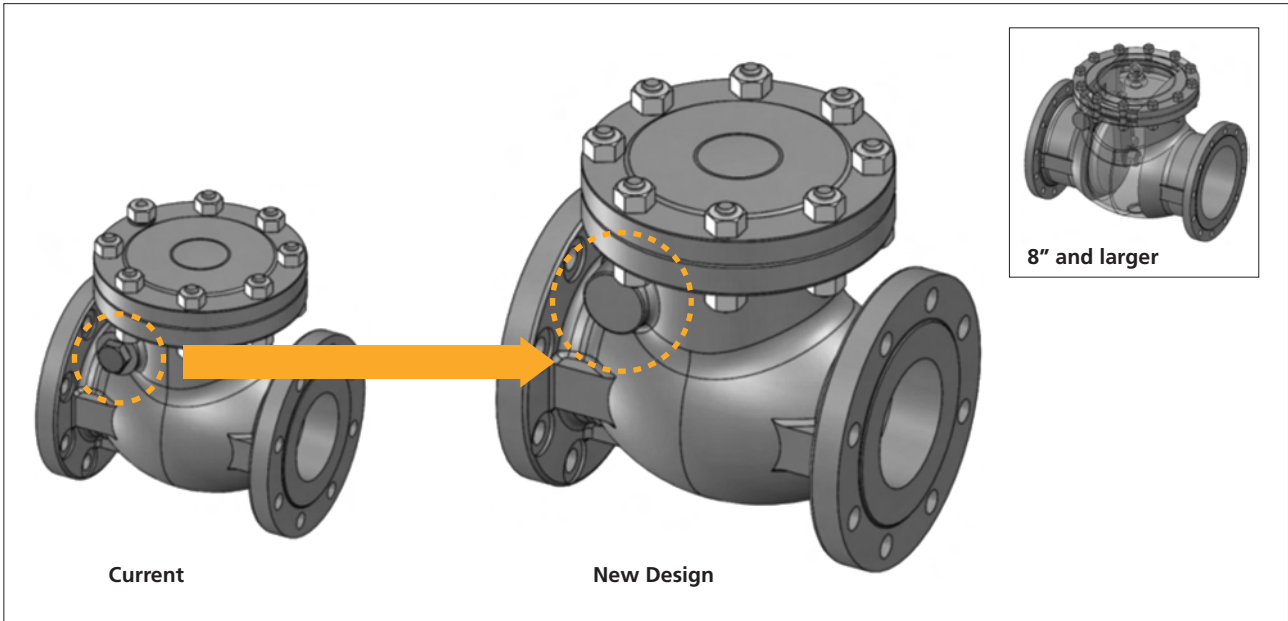
### Dimensions

Nominal Size		2	2½	3	4	6	8	10	12	14	16
		50	65	80	100	150	200	250	300	350	400
L <sub>1</sub>	in	14.5	16.5	18.5	21.5	27.8	32.8	39.0	44.5	49.5	54.5
	mm	368	419	470	546	705	832	991	1130	1257	1384
L <sub>2</sub>	in	14.5	16.5	18.5	21.5	27.8	32.8	39.0	44.5	49.5	54.5
	mm	368	419	470	546	705	832	991	1130	1257	1384
H	in	11.5	12.4	13.3	15.3	20.2	25.6	29.0	34.4	37.6	42.6
	mm	292	315	339	388	514	649	737	875	955	1082

Refer to "Standard Product Range" on page 01.

# KITZ Internal Hinge Pin Check Valves

## Design

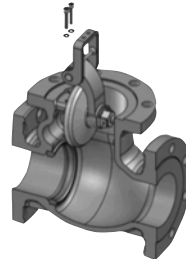


## Features

- API594(2017) 에 의해 설계됩니다.
- Hinge Pin Plug를 통한 누출이 없습니다.
- 회전방지 Disc 디자인입니다. (Anti-Rotation)
- 기존의 Kitz 체크밸브와 F 치수가 같습니다.
- 기존의 Kitz 체크밸브와 유량이 같습니다.

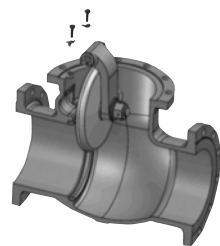
## Body Disc Connection

### Disc Hanger Type



6" and smaller

### Body Fix Type



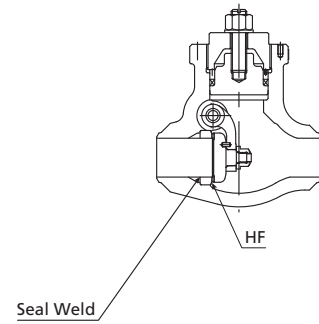
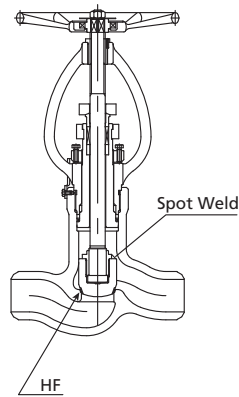
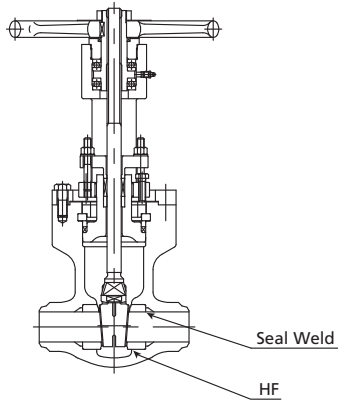
8" and larger

# Pressure Seal Bonnet Valve

Gate Valve

Globe Valve

Check Valve



Parts	Materials
Body	A216 Gr.WCB
Bonnet	Up to 200A: A105 250A & over: A216 Gr.WCB
Stem	SUS403 or OHTARON1
Disc	Up to 250A: A105+HF* 300A & over: A216 Gr.WCB+HF*
Gland Packing	Flexible graphite
Gasket	Flexible graphite
Body Seat Ring	A105+HF*
Handwheel	Ductile iron

\*HF: Hard facing with Co-Cr-W alloy

Parts	Materials
Body	A216 Gr.WCB+ HF*
Bonnet	A105
Stem	OHTARON1
Disc	A182 F11+ HF*
Packing	Flexible Graphite
Gasket	Flexible Graphite
Handwheel	SCPH2+SF440A

Parts	Materials
Body	A216 Gr.WCB
Cover	A105
Disc	Up to 125A: 105+ HF* 150A and Over: A182 F11+ HF*
Gasket	Flexible graphite
Body Seat Ring	Up to 125A A105+ HF* 150A and over: A182 F11+ HF*

## Product Range

Fig.	Nominal Size	DN	NPS	Valve Type	(mm)														
					50	65	80	100	150	200	250	300	350	400	450	500	650		
900SCLSPSY	Gate				2	2 1/2	3	4	6	8	10	12	14	16	18	20	24		
1500SCLSPSY					○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
2500SCLSPSY					○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
900SCJSPSY	Globe				2	2 1/2	3	4	6	8	10	12	14	16	18	20	24		
1500SCJSPSY					○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
2500SCJSPSY					○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
900SCOSPSY	Check				2	2 1/2	3	4	6	8	10	12	14	16	18	20	24		
1500SCOSPSY					○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
2500SCOSPSY					○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

Gear 작동 사양에 관련된 더 많은 정보는 KITZ로 문의하여 주십시오.

■ Design Standard: ASME B16.34  
 P-T rating: ASME B16.34  
 ■ In case of gear operation, "G-" will be put before product codes.

# Care for Handling Valves

## 1. Before installing valves:

밸브를 설치하기 전, 고온 고압의 조건과 사용조건을 충족하는 적절한 밸브를 준비하십시오. 모래나 찌꺼기류(Scale)와 같은 이물질이 배관속에 남아있을수도 있으니, 밸브를시점작동하기 전 밸브 Seat표면을 보호하기 위하여 필터(Filter) 또는, 스트레이너(Strainer)를 이용하여 배출시킵니다.

## 2. Installing valves:

밸브를 장착할 때, 배관속 용접 잔해물(Spatter), 부스러기(Chips) 찌꺼기또는 모래가 남아있는지 다시 한번 더 확인하십시오. Flange End Valve를 설치하기 위해, Flange볼트를 별모양으로 교대로 조입니다. 밸브를 설치하는 동안 배관압력(Piping Stress)과 같은 외부압력이 Flange에가해진다면 밸브지지대(Valve Support)나 적절한 보호장비를 설치하십시오.

Body/Bonnet의 볼트상태를 점검하고 이동이나 보관중 응력완화가 생기는 Fastener도 확인합니다.

밸브를 작동하기 전, Stem과 Yoke에 윤활제를 도포하십시오. KITZ밸브는 조립의 용이성을 위해 아주 약간 윤활제만 도포된 채 공장에서 출고됩니다.

## 3. Retightening valves glands:

밸브가 작동중임에도 불구하고 Gland 손잡이에서 누수가 감지된다면, 즉시 Gland 너트(Nut)를 다시 조여야 합니다. 밸브의 손잡이가 돌아가는 상황에서는 누수가 멈출때까지 Gland를 천천히 조입니다. 이 과정 후에도 밸브작동 토크(Valve Operating Torque)가 상당히 증가한다면 밸브의 사용수명을 위해 모든 Packing Ring을 교체하는 것을 추천드립니다.

## 4. Replacing packing rings:

밸브보수를 위해 Packing Ring 교체를 추천하지만, 밸브가 대기압력으로 압력이 줄어드는 상황이 아닌 가압상태일때는 교체를 추천하지 않습니다. KITZ Cast Carbon Steel 및 Low Alloy Valve는 Bonnet Bushing에 Backseat이 장착되어 제공됩니다. 만약 Gland를 다시 조임에도 불구하고 지속적인 누수가 발생한다면, Backseat의 Sealing기능을 이용하기 위해 추가로 Packing Ring을 덧대거나 교체하십시오.

Backseat의 Seaking기능은 가끔 내부에 끼어있는 녹이나 이물질에 의해 방해를 받을수 있습니다. 이러한 상황에서는 응급해결책으로 Packing Chamber 윗부분에 Packing Ring을 덧대거나 교체하여야 합니다.

Packing Ring의 교체를 위해 우선 Gland nut를 제거하고 Packing Ring을 순차적으로 제거합니다. 그런다음 Packing Chamber와 Stem을 깨끗이 닦습니다. 모든 Sliding Part의 상태를 확인한 후, 조심스럽게 새 Packing Ring을 부착합니다. 가볍게 Gland를 몇번 누른 후 Gland nut를 대등하게 조입니다.

# Pressure - Temperature Ratings <For reference only> Valves - Flanged and Welding End : Standard Class

ASTM Material Standard-to ASME B16.34 2013

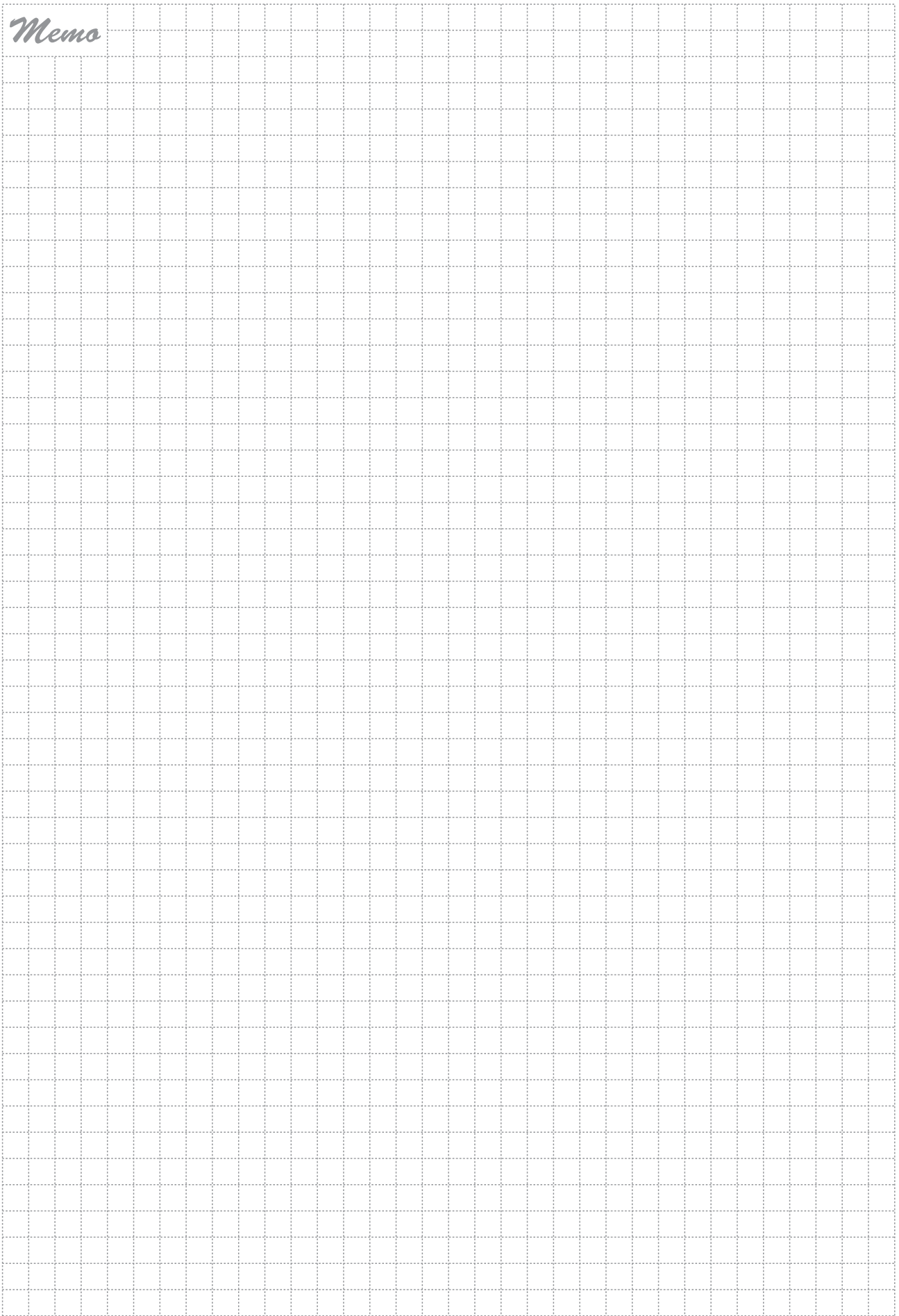
Temperature		Working Pressures by Class, psig														
		Class 150					Class 300					Class 600				
°F	°C	WCB (a)	WC6 (b)	C5 (c)	C12 (c)	LCC (d)	WCB (a)	WC6 (b)	C5 (c)	C12 (c)	LCC (d)	WCB (a)	WC6 (b)	C5 (c)	C12 (c)	LCC (d)
-20 to 100	-29 to 38	285	290	290	290	290	740	750	750	750	750	1,480	1,500	1,500	1,500	1,500
200	93	260	260	260	260	260	680	750	750	750	750	1,360	1,500	1,500	1,500	1,500
300	149	230	230	230	230	230	655	720	730	730	730	1,310	1,445	1,455	1,455	1,455
400	204	200	200	200	200	200	635	695	705	705	705	1,265	1,385	1,410	1,410	1,405
500	260	170	170	170	170	170	605	665	665	665	665	1,205	1,330	1,330	1,330	1,330
600	316	140	140	140	140	140	570	605	605	605	605	1,135	1,210	1,210	1,210	1,210
650	343	125	125	125	125	125	550	590	590	590	590	1,100	1,175	1,175	1,175	1,175
700	371	110	110	110	110	110	530	570	570	570	555	1,060	1,135	1,135	1,135	1,110
750	399	95	95	95	95	95	505	530	530	530	505	1,015	1,065	1,065	1,065	1,015
800	427	80	80	80	80	80	410	510	510	510	410	825	1,015	1,015	1,015	825
850	454	65	65	65	65	65	320	485	485	485	320	640	975	975	975	640
900	482	50	50	50	50	50	230	450	375	450	225	460	900	745	900	445
950	510	35	35	35	35	35	135	320	275	375	135	275	640	550	755	275
1000	538	20	20	20	20	20	85	215	200	255	85	170	430	400	505	170
1050	566		20	20	20			145	145	170			290	290	345	
1100	593		20	20	20			95	100	115			190	200	225	
1150	621		20	20	20			65	60	75			130	125	150	
1200	649		15	15	20			40	35	50			80	70	105	

Temperature		Working Pressures by Class, psig														
		Class 900					Class 1500					Class 2500				
°F	°C	WCB (a)	WC6 (b)	C5 (c)	C12 (c)	LCC (d)	WCB (a)	WC6 (b)	C5 (c)	C12 (c)	LCC (d)	WCB (a)	WC6 (b)	C5 (c)	C12 (c)	LCC (d)
-20 to 100	-29 to 38	2,220	2,250	2,250	2,250	2,250	3,705	3,750	3,750	3,750	3,750	6,170	6,250	6,250	6,250	6,250
200	93	2,035	2,250	2,250	2,250	2,250	3,395	3,750	3,750	3,750	3,750	5,655	6,250	6,250	6,250	6,250
300	149	1,965	2,165	2,185	2,185	2,185	3,270	3,610	3,640	3,640	3,640	5,450	6,015	6,070	6,070	6,070
400	204	1,900	2,080	2,115	2,115	2,110	3,170	3,465	3,530	3,530	3,520	5,280	5,775	5,880	5,880	5,865
500	260	1,810	1,995	1,995	1,995	1,995	3,015	3,325	3,325	3,325	3,325	5,025	5,540	5,540	5,540	5,540
600	316	1,705	1,815	1,815	1,815	1,815	2,840	3,025	3,025	3,025	3,025	4,730	5,040	5,040	5,040	5,040
650	343	1,650	1,765	1,765	1,765	1,765	2,745	2,940	2,940	2,940	2,940	4,575	4,905	4,905	4,905	4,905
700	371	1,590	1,705	1,705	1,705	1,665	2,665	2,840	2,840	2,840	2,775	4,425	4,730	4,730	4,730	4,630
750	399	1,520	1,595	1,595	1,595	1,520	2,535	2,660	2,660	2,660	2,535	4,230	4,430	4,430	4,430	4,230
800	427	1,235	1,525	1,525	1,525	1,235	2,055	2,540	2,540	2,540	2,055	3,430	4,230	4,230	4,230	3,430
850	454	955	1,460	1,460	1,460	955	1,595	2,435	2,435	2,435	1,595	2,655	4,060	4,060	4,060	2,655
900	482	690	1,350	1,120	1,350	670	1,150	2,245	1,870	2,245	1,115	1,915	3,745	3,115	3,745	1,855
950	510	410	955	825	1,130	410	685	1,595	1,370	1,885	685	1,145	2,655	2,285	3,145	1,145
1000	538	255	650	595	760	255	430	1,080	995	1,270	430	715	1,800	1,655	2,115	715
1050	566		430	430	515			720	720	855			1,200	1,200	1,430	
1100	593		290	300	340			480	495	565			800	830	945	
1150	621		195	185	225			325	310	375			545	515	630	
1200	649		125	105	155			205	170	255			345	285	430	

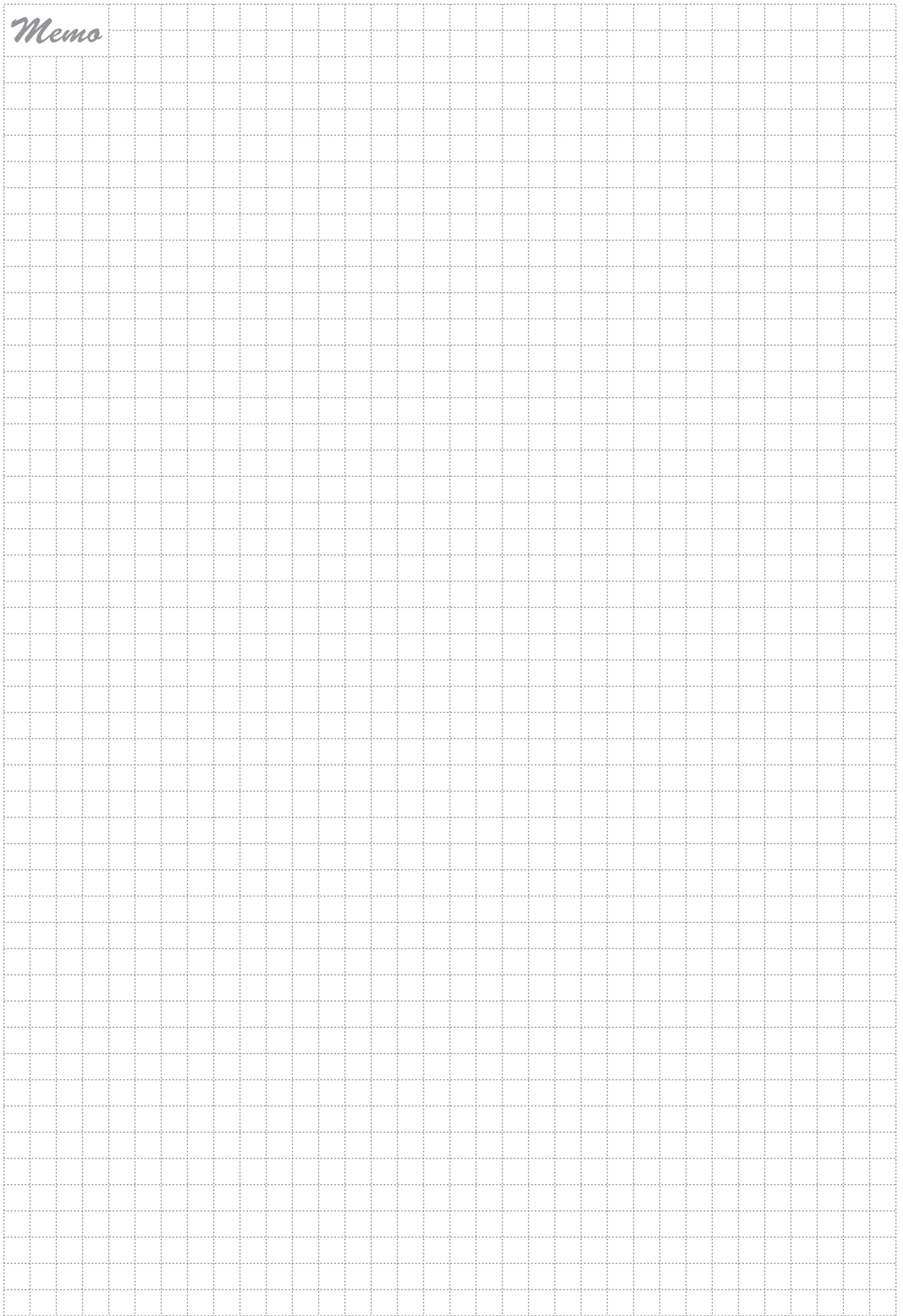
- (a) 이상의 온도에 장시간 노출되면 Steel 의 Carbide Phase가 Graphite로 바뀔 수 있습니다. 800°F 이상의 온도에서 장시간 사용하는 행위는 권장하지 않습니다.
- (b) 표준화된 강화 재료(Tempered Material)만 사용합니다. 하지만 1100°F 이상의 온도에서 장시간 사용하는 행위는 권장하지 않습니다.
- (c) 표준화된 강화 재료(Tempered Material)만 사용합니다.
- (d) 650°F이상의 온도에서 사용하지 마십시오.



*Memo*



*Memo*



*Memo*

A large grid of dotted lines for writing a memo. The grid consists of 20 columns and 30 rows of small squares, each formed by two dotted lines. The word "Memo" is written in a cursive font in the top-left corner of the grid.

## CAUTION

Pressure-temperature ratings and other performance data published in this catalog have been developed from our design calculation, in-house testing, field reports provided by our customers and / or published official standards or specifications. They are good only to cover typical applications as a general guideline to users of KITZ products introduced in this catalog.

KITZ Carbon Steel Paintings are suitable for general service conditions. For Painting used in severe atmospheres or at elevated temperatures please contact us for recommendations based on your service environment.

For any specific application, users are kindly requested to contact KITZ Corporation for technical advice, or to carry out their own study and evaluation for proving the suitability of these products to such an application. Failure to follow this request could result in property damage and/or personal injury, for which we shall not be liable.

While this catalog has been compiled with the utmost care, we assume no responsibility for errors, impropriety, or inadequacy. Any information provided in this catalog is subject to from-time-to-time change without notice for error rectification, product discontinuation, design modification, new product introduction or any other cause that KITZ Corporation considers necessary. This edition cancels all previous issues.

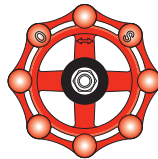
Read the instruction manual carefully before use.

## NOTICE

If any products designated as strategic material in the Foreign Exchange and Foreign Trade Law, Cabinet Order Concerning Control of Export Trade, Cabinet order Concerning Control of Foreign Exchange and other related laws and ordinances ("Foreign Exchange Laws") are exported to any foreign country or countries, an export license issued by the Japanese Government will be required under the Foreign Exchange Laws.

Further, there may be cases where an export license issued by the government of the United States or other country will be required under the applicable export-related laws and ordinances in such relevant countries.

The contract shall become effective subject to the fact that a relevant export license is obtained from the Japanese Government.



*A chrysanthemum-handle is a symbol of KITZ,  
the brand of valve reliability*

ISO 9001 certified since 1989

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